PIPELINE SAFETY AND THE OFFICE OF PIPELINE SAFETY

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HIGHWAYS, TRANSIT AND PIPELINES

OF THE

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE HOUSE OF REPRESENTATIVES

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PIPELINE SAFETY AND THE OFFICE OF PIPELINE SAFETY

WEDNESDAY, JUNE 16, 2004

HOUSE OF REPRESENTATIVES, COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE, SUBCOMMITTEE ON HIGHWAYS, TRANSIT AND PIPELINES, WASHINGTON, D.C.

The subcommittee met, pursuant to call, at 10:00 a.m. in room 2167, Rayburn House Office Building, Hon. Tom Petri [chairman of the subcommittee] presiding.

Mr. PETRI. The subcommittee will come to order.

Welcome to this hearing of the Subcommittee on Highway, Transit and Pipelines. Last year, we held numerous hearings, largely concerned with this Subcommittee's current largest piece of legislation, TEA-LU, that we are currently in conference on that bill. I think it's a testament to the members of this Subcommittee that our commitment to pipeline safety is such that our holding this hearing today while in conference on that bill.

The background for this hearing is straightforward. In the waning days of the 107th Congress, H.R. 3609, the Pipeline Security and Security Act of 2002, passed both houses and was signed into law. The bill aimed to improve the safety and security of the Nation's $2.2 million miles of pipelines. It was all that remained of efforts to enact a broad energy package in the 107th Congress, so we did our piece.

The Act requires that one half of all interstate gas pipelines be inspected within five years, with the rest facing initial inspection within a decade. Calls for inspections within ten years of enactment, with reinspections every seven years after that. The Act increased from $25,000 to $100,000 daily civil penalties for companies found to be operating below safety standards with a maximum penalty for a related series of violations raised from $500,000 to $1 million.

In addition to the integrity management and penalty amendments, the new law included many other amendments to first, enhance one call notification programs, second, improve public education programs, safety orders, penalties and risk management, third, to require reporting on population encroachment, fourth, require improvement of integrity management programs and preparation of plans for qualification of operators, fifth, improve security of pipeline facilities, and sixth, provide for a national pipeline mapping system and for coordination of environmental reviews. The Act further provides for State roles in pipeline investigation and community right to know.

Today's hearing is designed to see whether we are, after a roughly a year and a half after implementation of the Pipeline Safety and Security Act, whether we're on track. We're of the opinion that the Office of Pipeline Safety has made normal progress in advancing pipeline safety and security and in implementing P.L. 107–355. While there is always room for improvement, this hearing should note the hard work done and being done at OPS.

I welcome the representatives from that agency and all of our witnesses here this morning, and now welcome and recognize the Ranking Democrat on the Subcommittee, Mr. Lipinski, for his opening statement.

Mr. LIPINSKI. Mr. Chairman, thank you for calling today's hearing. Our Nation's natural gas and petroleum pipelines, while often forgotten by the general public, are vital to our way of life. According to the Office of Pipeline Safety, almost two-thirds of the energy we consume as a Nation is transported via the national pipeline system. With the passage of H.R. 3609, the Pipeline Safety and Improvement Act of 2002, I believe we made a step forward toward improving pipeline safety. It was a long process, but in the end, the years of negotiations produced a good piece of legislation.

But as the ranking member of the full Committee said on the Floor during consideration of H.R. 3609, simply because we enact a good, strong pipeline safety bill is no guarantee that its provisions will vigorously be carried out. Mr. Oberstar further noted that Congress passed pipeline safety laws in 1988 and 1992. But the Office of Pipeline Safety was less than perfect in implementing the laws we wrote.

Over the years, before the passage of H.R. 3609, there were complaints about the agency's lack of responsiveness on safety recommendations. Criticisms and concerns were raised by the U.S. DOT, IG, the GAO and the NTSB. Some of the criticism may have been justified, and some may have been unwarranted. Nevertheless, we have a responsibility to ensure the laws are implemented in an appropriate fashion. We have a duty to ensure that safety continues to be the primary objective at a safety agency.

In addition, we need to ensure that the laws that we pass are being implemented consistent with Congressional intent. Nearly two years ago, the leadership of the Office of Pipeline Safety and its current agency, the Research and Special Programs Administration, made promise after promise that they would do better. Nearly two years have passed since H.R. 3609 was signed into law. Today, we will hear from the Inspector General, the General Accounting Office, the Research and Special Programs Administrator and the Office of Pipeline Safety.

Has progress been made in implementation of Congressional directives? Has progress been made in the implementation of the NTSB safety recommendations? I believe these are all important, valid questions. And with this oversight hearing, we now have an opportunity to hear some answers to these questions.

I welcome all of the witnesses here today and I look forward to their testimony. Thank you very much, Mr. Chairman.

Mr. PETRI. Thank you. And statements by the Chairman of the Full Committee, Mr. Young and Mr. Oberstar, will be made a part of this record if and when submitted.

We now welcome the panel.

Mr. LARSEN. Mr. Chairman?

Mr. PETRI. Oh, yes, please, Mr. Larsen.

Mr. LARSEN. Thank you, Mr. Chairman.

Mr. Chairman, I want to thank you for holding this hearing today. As many of you know, last Thursday was the five year anniversary of the Bellingham, Washington pipeline rupture in my district. On June 10th, 1999 a pipeline that ran through a local park ruptured, spilling over a quarter million gallons of gasoline into Walking Creek. Two boys playing in the creek with a spent lighter ignited the gasoline, creating a giant fireball, incinerating one and a half miles of the creek bed. Those two boys and another young man were caught in the fireball and died.

As I sit here, I carry the memory of those two boys and that young man. Their deaths remind us all of the need to continue to protect our communities all across this country from similar tragedies. Their families' losses remind Congress that we must continue to look at every avenue to protect our communities from harm.

I was very pleased to be able to work with my colleagues to enact a stronger pipeline safety law in 2002. Although this law will improve pipeline safety in our country, work remains to be done. I look forward to hearing from the panel today on the lessons that we've learned over the past year and a half, especially the lessons learned from the Bellingham explosion in terms of implementing the law. Hopefully you can expound on how incidents are handled differently after the June 1999 accident and what steps OPS, RSPA and the Department of Transportation need to take to continue to ensure accidents do not occur.

I'm particularly concerned about the timeliness of enforcement action. For example, OPS had a hearing on the Jackson Prairie Interstate facility 15 months ago and the Washington Utilities and Transportation Commission has still not heard back officially on that case, even as they continue to send inspectors out to the same facility. I urge you to continue to look at ways to process violations in a comprehensive and efficient manner to give your regulatory partners the ability to act in a timely fashion.

It's also clear from looking over testimony of what was said at yesterday's hearing in the Senate that inspections are working. It also appears that the need is greater than what was expected. I believe that Mr. Mead stated of only 16 percent of those pipelines examined so far under the new inspection program, 20,000 potential problems have been identified, 1,200 of which required immediate repair. As you know, the new program will not be fully implemented for another eight years, with most pipelines still needing to be inspected, which means that we're still yet quite a ways from our end goal.

So I look forward to hearing from the panel on the severity and quantity of problems that have been found. For instance, is what has been discovered what you expected? If not, what can be done differently as an agency to adjust what seems to me to be a much larger need than we originally had thought. Since coming to Congress, I have learned that pipeline safety is more about inspecting pipelines and involves where and how to set standards and involves creating a strong network of Federal, State and local efforts

to enforce those standards, and involves working with companies and the general public, as well as pursuing technology, to avoid accidents in the future and better monitor the Nation's pipelines.

I've been pleased with the many steps OPS has taken over the last few years and look forward to hearing about where OPS is going in the future with all these efforts. I look forward to having you address these and other issues as a panel, and appreciate your joining us here today.

Thank you very much, Mr. Chairman, for an opportunity to provide an opening statement.

Mr. PETRI. Thank you. Yes, the gentleman from New Jersey.

Mr. PASCRELL. Thank you, Mr. Chairman. Let me say that I'm pleased that this Subcommittee is continuing its oversight on this important issue. I think we had a great, open debate two years ago, a year and a half ago, and I thought it was very worthwhile, brought a lot of things to light. We're going to see today what's happened since.

This past March we in New Jersey noted the tenth anniversary of a natural gas explosion in Edison. The blast launched a 400 foot torch into the air, leveled eight buildings, left 128 families homeless and sent nearly 2,000 people running for their lives. One death was attributed to the tragedy.

For years, many of us in Congress attempted to pass legislation to give OPS some teeth and force them to adopt better safety and tighter regulations. In 2002, after a contentious debate, I was proud that this Committee helped write and pass a strong pipeline safety law. I believe that progress has been made over the past two years.

First of all, we'll give the industry credit because the one call system is really getting into the public consciousness. I don't think a radio commercial break goes by without a public service announcement telling us all to dig safely. I'm pleased that OPS has completed the National Pipeline Mapping System required by Congress, and you know how significant that is, since what we found out two years ago was that much of the pipeline in this country was not mapped. That is absolutely waiting for a catastrophe to happen.

We said all along that getting the maps is critical to both safety and security. If you don't know what's in the ground, you can't figure it out and monitor it. That is unacceptable.

There's much work to be done, as the GAO and the IG will tell us, tell the Subcommittee. Our work on integrity management must be ratcheted up a notch, I believe. The inspections are working, as thousands of threats to the integrity of pipelines are being found already. What unnerves me is that we have hundreds of thousands of miles to go.

Furthermore, OPS should be vigilantly enforcing the fines it hands out. I believe that this is an important way to ensure compliance. I have my doubts about what's going on in that realm.

Another pressing issue I see is that of pipeline security. We obviously need to know who is in charge and overseeing the industry's pipeline security plans. We also want to make sure that whatever agency that is coordinating with the localities, so that they are prepared to deal with an accident properly. I don't know if they're

monitoring that correctly, and I don't know if we even have in place the mechanism so that we can report back to the Congress of our progress or lack of it.

I'm pleased that these things are getting better. We still have a great deal of work left to do. I thank the panel for being here to discuss this important subject, and thank you, Mr. Chairman and Ranking Member, for bringing this again to our attention.

Mr. PETRI. Thank you, Mr. Pascrell.

Mr. Burgess, would you care to make an opening statement? We welcome you. There are pipeline problems in his district as well, so he's interested in participating.

We welcome the panel, consisting of Mr. Robert Chipkevich, the Director, Office of Railroads, Pipeline and Hazardous Materials Investigations, National Transportation Safety Board; Kenneth Mead, who's a frequent participant in these hearings for this and other panels, Inspector General of the Department of Transportation; Katherine Siggerud, the Director of Physical Infrastructure Issues, U.S. General Accounting Office; Samuel G. Bonasso, Deputy Administrator, Research and Special Programs Administration, DOT; and Ms. Stacey Gerard, the Associate Administrator, Office of Pipeline Safety, U.S. Department of Transportation.

We thank you and your staffs for the work that went into preparing your statement for this hearing today and we welcome you to, as you know, summarize them in approximately five minutes. We'll begin with Mr. Chipkevich.

TESTIMONY OF ROBERT CHIPKEVICH, DIRECTOR, OFFICE OF RAILROADS, PIPELINE AND HAZARDOUS MATERIALS INVESTIGATIONS, NATIONAL TRANSPORTATION SAFETY BOARD; HON. KENNETH M. MEAD, INSPECTOR GENERAL, DEPARTMENT OF TRANSPORTATION; KATHERINE SIGGERUD, DIRECTOR, PHYSICAL INFRASTRUCTURE ISSUES, UNITED STATES GENERAL ACCOUNTING OFFICE; SAMUEL G. BONASSO, DEPUTY ADMINISTRATOR, RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION, UNITED STATES DEPARTMENT OF TRANSPORTATION; AND STACEY GERARD, ASSOCIATE ADMINISTRATOR, OFFICE OF PIPELINE SAFETY, U.S. DEPARTMENT OF TRANSPORTATION

Mr. CHIPKEVICH. Good morning, thank you, Chairman Petri and members of the Subcommittee. My name is Bob Chipkevich and I'm Director of the National Transportation Safety Board's Office of Railroads, Pipeline and Hazardous Materials Investigations. NTSB Chairman Ellen Engleman Connors has asked me to represent her and the Board today. It's my privilege to do so.

Since I last testified before this Subcommittee in February 2002, the Research and Special Programs Administration has completed several significant activities to improve pipeline safety, including pipeline integrity assessment programs, damage prevention activities and improved data collection, actions that are responsive to Safety Board recommendations.

In February 2002, there were 42 open pipeline safety recommendations to RSPA and 6 were classified as unacceptable action. Today there are 10 open pipeline safety recommendations and all are in open, acceptable status. In February 2002, RSPA's histor-

ical acceptance rate for pipeline safety recommendations was 69.9 percent, the lowest of all modal administrations. Today that acceptance rate is 74.9 percent, a significant improvement.

Since February 2002, 39 open pipeline safety recommendations have been closed, all acceptable action. In December of 2000, RSPA issued a final rule requiring hazardous liquid pipeline operators to establish pipeline integrity assessment programs, and in December of 2003, similar requirements were mandated for natural gas transmission lines. As a result, these pipeline operators are required to initiate and follow up pipeline integrity management programs for high consequence areas.

Critical areas of the program include required testing to identify corrosion and other time dependent pipeline damage and remedial action. As a result of these new requirements, on February 21st of 2004, the Safety Board closed as acceptable action safety recommendations that have been open since 1987.

However, RSPA must now ensure that pipeline operators implement effective integrity management programs throughout the industry. Risk management principles, if properly applied, can be powerful tools to identify the risks to pipeline integrity and should lead operators to take action to mitigate those risks. Quantifying inputs into various risk management models, however, can be difficult and subjective. RSPA must establish an effective evaluation program and aggressively examine operators' programs.

Excavation damage continues to be a leading cause of pipeline accidents and NTSB has issued numerous safety recommendations on this issue. The Safety Board believes that the RSPA's use of a common ground alliance has been an effective means of addressing factors that contribute to excavation damage. The CGA has been able to develop consensus on safety issues affecting underground utilities and the construction industry, and its best practices for preventing damage to underground facilities can be an important and effective tool.

RSPA has responded effectively to safety recommendations for improved pipeline mapping requirements and data collection. Data that is now required to be reported on action reports and improved exposure data can help RSPA and the industry more effectively target factors that can reduce pipeline accidents. We are aware that RSPA is continuing to fund several research projects that address excavation damage issues. However, there is an action that we believe can be taken now to reduce the consequences of excavation accidents.

In 2001, after investigating an accident in South Riding, Virginia, the Safety Board again recommended that RSPA require gas pipeline operators to install excess flow valves in all new and renewed gas service lines when the operating conditions are compatible with readily available valves. Excess flow valves can effectively stop the flow of natural gas when service lines are broken or joints are pulled apart during excavation related activities.

RSPA requires gas distribution operators to notify customers about the availability of these valves, but only about half of the operators currently install these valves as an operating practice. Because excavation activities are a leading cause of pipeline accidents and because excess flow valves can effectively shut off the flow of

gas to damaged service lines, the Safety Board believes that excess flow valves can reduce the consequences of these types of accidents and that action on this issue can move forward.

Other safety issues recommendations address the need for determining the susceptibility of some plastic pipe to premature brittle cracking problems, ensuring that pipeline submerged beneath navigable waterways are adequately marked and protected from damage by vessels and requiring that new pipelines be designed and constructed with features to mitigate internal corrosion. Actions on these safety recommendations related to these issues are currently classified as acceptable action.

Mr. Chairman, that completes my statement, and I'll be happy to respond to any questions you have at the appropriate time.

Mr. PETRI. Thank you, Mr. Chipkevich.

Mr. Mead?

Mr. MEAD. Thank you, Mr. Chairman. We issued a report on pipeline safety yesterday and I think either you have it or it is being delivered.

The deadly pipeline rupture in Bellingham, Washington, was the impetus behind the 2000 review we did of pipeline safety. That was followed by a U.S. Attorney's office request that we, jointly with EPA, determine whether violations of Federal law occurred. The result of that was $36 million in civil and criminal fines and an additional $77 million to ensure safety of the pipelines. When we last testified before you, we reported OPS was very slowly implementing pipeline safety initiatives, Congressionally mandated or otherwise. It did not really seem to matter who told them to do it, they just did not do it. Some of the mandates were over eight years old. NTSB safety recommendations remained open, some for more than a decade.

I can report today OPS has clearly gotten the message. They have made considerable progress in implementing our recommendation of carrying out most of the Congressional mandates. They have also been removed from the NTSB's list of most wanted safety improvements. That has happened largely because of the staff in the OPS, the Secretary's leadership, and the leadership of Chairwoman Engleman, who was the Administrator of the Research and Special Programs Administration.

That said, there is still a lot to be done. I do not want to understate that for a moment. I would like to highlight four areas quickly: one, mapping where pipelines are located; two, the new Integrity Management Program inspection process; three, closing a gap we see on natural gas distribution pipelines; and four, pipeline security.

Mapping. When we testified in 2002, we did not know where a substantial percentage of the pipelines were located. And by substantial, I mean over 70 percent. A voluntary mapping initiative that started in 1994 was not working, so Congress mandated it and OPS completed a mapping system this year. OPS now has mapped 100 percent of hazardous liquid and natural gas transmission pipelines.

There are early signs that the inspection process is working very well, and there was very much a need for these inspections. To date, more than 20,000 integrity threats have been identified and,

according to OPS, remediated. The key point here is that these threats have been identified in 16 percent, or about 25,000 miles, of hazardous liquid pipeline. Of the 20,000 threats, about 1,200 had to be immediately repaired, 760 required repairs within 60 days, and 2,400 required repairs within 180 days.

This process is not as simple as passing a law or issuing a rule, doing the inspections, and identifying the problems. I want to call the attention of the Committee to the fact that for some repairs, the environmental review and permitting process, has delayed preventive measures. This was demonstrated in April of this year in California, where a pipeline ruptured. The deteriorating condition of that pipeline was well known and documented. In 2001, the operator actually initiated steps to relocate the pipeline and fix the problem. But it took nearly 3 years and over 40 permits before that approval was issued.

That was too late for this pipeline, and a rupture occurred. Fortunately there was no loss of human life.

When you passed the 2000 Pipeline Safety Improvement Act, you recognized the need to expedite the environmental review process. And an interagency task force was set up to do that. A memorandum of understanding was drafted, and DOT signed it on Monday of this week. I think there is one agency that has not signed it. But it is not clear to us what process changes this will actually require in terms of change. We hope it will become clearer as the Act is implemented. We do not want to wait for a serious accident to occur.

Oversight of the IMPs. OPS will be monitoring the implementation of more than 1,100 pipeline operator IMPs. OPS has done about 70 of them to date. They have tripled the number of inspectors over the last 5 years. Today they have 90. They are augmented by about 400 State inspectors.

When we last testified, OPS did not train its inspectors on the use of smart pig technologies. They do now. I also think they are moving in the right direction in the R&D area. R&D funding has more than tripled in the last 3 years. They now have 22 projects. When we last testified they had, I think, one. And that is important because these smart pigs are not smart enough to detect all the flaws in pipelines.

We see an issue for the Committee and OPS to consider: natural gas distribution pipelines. These pipelines have caused more fatalities and more injuries than all the hazardous liquid and gas transmission pipelines combined. Gas distribution pipelines make up most of the gas pipeline mileage in the country, and they are the pipelines that deliver natural gas to the end user.

I think that the operators of natural gas distribution pipelines should be subject to some sort of IMP, just like the hazardous liquid and gas transmission operators are. The fact that they cannot use smart pigs in these distribution pipelines because the pipelines are so narrow and they curve and bend is not a sufficient reason. There are things that you can prescribe, such as the frequency of inspection and how often or when repairs should be made that are customary elements of the IMP, and I suggest they be applied to gas distribution pipelines.

Pipeline security. OPS took the lead to help reduce the risk of terrorist activity against the pipeline infrastructure following 9/11. They now state they play a secondary or support role to the Transportation Security Administration. The current directive that addresses security is written at too high a level of generality to define who is responsible for what. It basically says to collaborate.

That is not a self-defining term. We need a memorandum of understanding between the Department of Homeland Security, the Department of Transportation, and the Department of Energy that says who is responsible for the rulemaking, who will be performing security inspections, and who will enforce security requirements. Right now, that is not clear. I know the Department feels strongly that there should be a memorandum of understanding on this point.

Thank you.

Mr. PETRI. Thank you.

Ms. Siggerud?

Ms. SIGGERUD. Thank you, Mr. Chairman and members of the Committee, for the invitation to testify at this hearing today on oversight of the Office of Pipeline Safety.

We agree with your initial remarks about a reinvigoration of the Office of Pipeline Safety over the last four years, and would also remark on the significant changes made by the Pipeline Safety Improvement Act of 2002. In fact, we are here today because of that Act.

We reported in 2000 some concerns that we had about OPS had used certain enforcement actions such as the monetary sanctions known as civil penalties. As I will later relate, we see a real turnaround in that area.

The 2002 Acts require the GAO, in essence, follow up on the 2000 report that I mentioned. The information I will present today is based on that ongoing work and we'll be issuing a full report next month to this Committee.

As you know, pipeline transportation remains the safest form of freight transportation. OPS has been taking a number of steps, including a more aggressive enforcement posture, to make these pipelines safer. Enforcing the pipeline safety standards and taking action against violators is an important part of OPS' efforts to prevent accidents. My testimony today will cover the two topics directed by the 2002 Acts.

First, the effectiveness of OPS' enforcement strategy, and second, OPS' assessment of civil penalties against interstate pipeline operators that violate the Federal pipeline safety rules. Before I address these two topics, let me put OPS' enforcement program into some context.

Over the past several years, OPS has been concentrating on and implementing its integrity management program. As you know, this is a risk-based approach that has the potentially to fundamentally improve pipeline safety. This approach requires the pipeline operators to identify and address safety related threats to their pipelines in areas where an accident could have the greatest consequences. OPS believes that this approach has more potential to improve safety than its traditional approach, which is focused more on compliance than on threats. OPS emphasizes that integrity

management, coupled with its other initiatives, could change the safety culture of the industry.

Now that these initiatives are substantially underway, OPS is planning to improve the management of its enforcement program. Accordingly, my testimony today focuses on potential management improvements that should be useful to OPS as this focus on its enforcement program proceeds, and to this Committee as it continues to exercise oversight.

My first topic is the effectiveness of OPS' enforcement strategy. We found that definitive information on the strategy's effectiveness is not available because OPS is not yet using three key elements of program management that we view as necessary to demonstrate the strategy's relationship to industry compliance and ultimately to safety.

First, OPS has not established goals that specify the intended results of the new, more aggressive enforcement strategy that's been in place since the year 2000. Second, OPS has not developed a policy that describes the strategy and the strategy's contribution to pipeline safety. Finally, OPS has not put in place measures that would allow it to determine and demonstrate the effect of the new strategy on the industry's compliance.

Without these three elements, OPS cannot determine whether recent and current changes in its enforcement strategy are having or will have the desired effects. However, OPS is currently developing an enforcement policy that will help define the strategy and has begun to identify new measures of enforcement performance. OPS plans to finalize this policy and the related issues in 2005.

One component of enforcement, OPS' assessment of civil penalties, is my second topic. Here OPS is taking a more aggressive approach, imposing more and larger penalties than it did in the late 1990's, when its policy stressed partnering with industry. For example, from 2000 to 2003, OPS increased its assessment of civil penalties to an average of 22, compared with an average of 14 penalties a year from 1995 through 1999. OPS also saw an increase in the average size of civil penalties to about $29,000 during the recent years, compared with $18,000 during the earlier years.

With regard to whether the increased assessment of civil penalties actually deter non-compliance, there are a variety of opinions on this issue. Pipeline industry officials told us that civil penalties of any size or any other kind of enforcement action actually act as a deterrent in part because they keep the companies in the public eye. Others, such as safety advocacy groups say that OPS' civil penalties may be too small in some cases to deter non-compliance.

Finally, we found that DOT had collected most of the civil penalties that OPS assessed over the past 10 years. Data showed that operators have paid 94 percent of the assessed civil penalties. However, we also found some gaps in the communication between OPS and its collection agents that led to confusion about which penalties should be collected.

In light of the issues raised today in this statement, we are considering recommendations that could first enable OPS to demonstrate to the Congress that it has an effective enforcement strategy and second, remedy the problems we identified in OPS' collection of civil penalties.

Mr. Chairman, this concludes my statement. I'm happy to answer any questions.

Mr. PETRI. Thank you.

Mr. Bonasso?

Mr. BONASSO. Good morning, Mr. Chairman, thank you. My name is Samuel Bonasso, I'm the Deputy Administrator of RSPA, Research and Special Programs Administration.

Thank you for this opportunity to discuss our strategy and our long term prospects for improving safety and reliability of our Nation's pipeline infrastructure. My testimony addresses our responses to mandates in the Pipeline Safety Improvement Act of 2002, issues in its implementation and the results of our action. Our Nation, our economy and our way of life depend on pipeline transportation systems. Pipelines are the safest, most efficient way to transport the enormous quantities of natural gas and hazardous liquids we use each day.

The Pipeline Safety Improvement Act of 2002 challenged RSPA to improve our pipeline safety program. We have responded to this challenge with improved regulations, improved inspections and improved enforcement. This is a comprehensive and informed plan to identify and manage the risks faced by operators and by our communities. It has helped us implement new regulations and address the majority of tasks required by the new law.

Last year we completed the second step of our hazardous liquid and natural gas integrity management regulations. These regulations are the most significant safety standards for pipelines in the last 30 years. We are moving further to incorporate improved consensus standards that evaluate the adequacy of a pipeline operator's public education program and by the end of the year will finalize standards for operator qualifications.

We are improving opportunities for communities to understand the importance of pipeline safety and to take action for further pipeline protection. In addition, we are beginning a crisis communication initiative to improve the process of coordination of information and information sharing following a pipeline accident. With the Common Ground Alliance, we are spinning off regional alliances similar to the one in Arizona recently championed by our partner, the Arizona Corporation Commission.

We have also petitioned the Federal Communications Commission for a national three digit dialing code to provide a faster, simpler and more efficient one call system. We have a five year plan for pipeline research and development and a memorandum of understanding with the Department of Energy and the National Institutes of Standards and Technology for research planning. This has provided a clear vision for the advancement of technology focusing on improving pipeline safety.

As we continue with rigorous integrity management inspections of pipeline operators, we expect to discover more pipeline defects needing speedy repairs. This increased inspection, testing and repair of pipelines could take more pipelines temporarily out of service and potentially impact the delivery of energy. Recognizing this potential problem, Congress required Federal agencies to participate in an interagency committee to facilitate the prompt repair of

these pipelines so as to minimize safety, environment and energy supply consequences.

Under RSPA safety regulations we have established time frames for pipeline repairs depending on defect type and sensitivity. Any serious time sensitive repair should qualify for expedited permitting. Once a serious pipeline condition is identified, it could potentially impact the safety of citizens or surrounding sensitive environments. Reviewing applications for such a pipeline repair should move to the front of the line and be dealt with in a new way.

RSPA and its Office of Pipeline Safety are strongly committed to improving safety, reliability and public confidence in our Nation's pipeline infrastructure. We are also working hard to educate communities on how they can continue to live safely with pipelines. Following the leadership of your Committee and of this Administration, the legislation passed in recent years takes a new, more comprehensive and informed approach to identifying and managing the risks pipeline operators face and the risks pipelines pose to our communities.

Thanks to this knowledge and cooperation of all the parties, today everyone involved with pipelines is safer, and so is the environment they pass through. I'll be happy to take your questions, sir.

Mr. PETRI. Thank you. We've been joined by the Ranking Democrat of the Full Committee. Mr. Oberstar, I don't know if you have any statements you'd like to make but you're invited to do so if you would.

Mr. OBERSTAR. Thank you, Mr.Chairman. I think it's important to be holding this hearing and follow up on our legislation and see how the implementation of not only the new law but existing, preexisting legislation.

I have a number of questions that I'll be wanting to ask at the appropriate time. Thank you.

Mr. PETRI. Mr. Lipinski.

Mr. LIPINSKI. We're going to use the early bird here, so Mr. Larsen will be first. It's a term I picked up at the conference with the Senate, early bird.

Mr. LARSEN. I'm rushing to find my questions.

First, I want to obviously thank everyone for coming to the hearing today. We had a remembrance ceremony of sorts out in Bellingham last week on the 10th. I think a lot of the folks, the articles last week were about how the families have had this new life foisted upon them and become advocates, as well as trying to get their lives back in order and keep their lives in order as well. It's heartening to see so many advances that have been made as a result of the tragedy and as a result of the passage of the legislation a couple of years ago. I think they would be pleased to hear some of the numbers that Mr. Mead's office has come up with and pleased to hear about the progress that OPS, under Ms. Gerard's leadership, has taken as well.

I wanted to focus on a couple of areas. One is with the State coordination, Washington State. Certainly one of Washington State's interests was to have some more coordination between OPS and the State UTC. I was just wondering if someone can answer how well you think it's going working with States and whether or not

rule changes or certification or funding is preventing additional State involvement in pipeline regulation. Do you see a need for more States to get involved? Are there barriers to that? What would you suggest in terms of changes for additional State involvement?

Ms. GERARD. We've had some problems in the past, and I think we have concentrated in the last few years on strengthening the partnership by improved training of our State partners, improved access to information, web-based technologies and making a point of involving State representatives in all of our policy making and regulatory activities to the extent that the law currently allows.

I believe that the GAO did ask States some questions about what they thought, and you should probably hear from the GAO on that. But I think that some of the limitations of the State level does inhibit participation, particularly in the interstate agency program. There are issues with States participating in national consensus standards meetings, which are a very important complement to the regulatory program. We think it's very important that States should be able to participate in that process and have ample opportunity to get copies of those standards.

I think in general the partnership is working well, and particularly with the interstate agencies, we're striving to communicate better on issues they raised in cases.

Mr. LARSEN. OK.

Ms. SIGGERUD. Thank you for that nice setup, Ms. Gerard.

Mr. Larsen, GAO has raised a number of concerns over the years with regard to OPS' relationship to States. In the 2000 report that I mentioned, we recommended that OPS in fact tap the resources of the States more strongly than it has and attempt to build up that relationship. As part of our ongoing work, we interviewed all the 11 current interstate agents. Ten of the 11 felt that their involvement in inspection and oversight activities had improved over the last few years, and 7 of them felt that OPS was doing a better job of communicating back and forth between OPS to the States and vice versa.

There were a few issues that States mentioned to us with regard to timely action from OPS when States notified OPS of a problem that they identified through an inspection, and OPS has committed to try to be more timely in that area and respond within 60 days. They made that commitment this past November.

We had one outstanding recommendation that we made in 2002, and that was to communicate more clearly with the States about their role in the integrity management, the new program that has been rolled out and is being rolled out. OPS has a number of activities going on in that area. We will be assessing whether those are sufficient to close out our recommendation and reporting out as part of our annual recommendation follow-up within the next few months on that issue.

Mr. LARSEN. OK. Just a quick follow-up. I had a question in my opening statement about the Jackson Prairie facility. Do you have any response to that?

Ms. GERARD. Not on that particular case, except to say that we did take the action last fall of making the commitment to respond within 60 days on the initial disposition of the case. We have had

a meeting with all the interstate agents this winter after that time, and are working on procedures to streamline the communication process.

Mr. LARSEN. I'll follow up with you further on that, then. Thank you.

Mr. PETRI. Thank you. Mr. LoBiondo, any questions?

Mr. LOBIONDO. No questions, thank you, Mr. Chairman.

Mr. PETRI. Mr. Brown?

Mr. BROWN. Thank you, Mr. Chairman, thank you all for coming and bringing testimony this morning. This is a general question. Of the pipelines we have out there now, is it meeting our capacity? Are we operating at 100 percent or 50 percent or exactly, could somebody have an answer for that?

Mr. BONASSO. The pipelines that we have out there now are operating close to their capacity. It's estimated that roughly, they are operating at roughly 90 percent of their capacity. That's why we're concerned with the new regulations having an impact on energy supply. The surplus capacity could easily be used up if we have to close down a pipeline for integrity inspection repairs.

Mr. BROWN. I guess that brings me to my question for Mr. Mead. I was concerned about, in your statement that you mentioned that there was a permitting problem to try to get a repair in place. I was concerned what really delayed that.

Mr. MEAD. I think the problem was that in the environmental review process, there were so many permitting agencies involved and there was no requirement for them to work together. Different people had different stakes in the process, and there was no mechanism to force closure in a timely way. And that was a sad case.

I think we are all lucky that only animals were killed and only environmental damage was done. But the Agencies just signed this memorandum of understanding. If I were the Committee, I would ask some questions about how that memorandum of understanding is going to be implemented and what it is actually going to require people to do differently.

Mr. BROWN. I guess that leads up to my next question, is there anything that we need to do on this Committee to make that situation non-existent again, or maybe there are some regulations we might need to put in place to make that permitting more streamlined. Because it bothers me, and we have problems all the time down in South Carolina with the wetlands and the weather issues where you see, who's going to be held accountable. With this particular disaster, who is accountable for the problems? Anybody step up to the plate on that issue?

Mr. MEAD. Well, there is no mechanism in place that forces anybody to step up to the plate. That is one of the issues. I do have one suggestion. I would not get involved, if I were the Congress, in sorting through the environmental priorities. That is getting down in the weeds. What I think is needed is some type of mandatory closure date, so that these things do not drag on and on and on. Also needed is some type of mandatory concurrency of the reviews of the different authorities that have to issue permits. That would at least establish a time line. I would say that an agency like RSPA or the Department of Energy ought to be responsible for

setting that timeline, because they are in a good position to judge how urgent the repair is.

Mr. BROWN. Thank you very much, Mr. Mead.

Mr. Chairman, I would recommend that maybe we as a Committee take a look at that issue.

Mr. PETRI. Thank you. I would ask, not off the top of his head, but this is an issue that recurs, and we pass all kinds of laws and we have all kinds of requirements, but there's no penalty clause for the bureaucrats. As a result, even if it's a mandatory date—so if you have any ideas as to how to actually enforce mandates, we do it in companies with $100,000 a day and all these sorts of things.

But what do we do within the administrative apparatus of the Government to make sure that these things are actually attended to? This is a big issue, and I'm not sure—if there was an easy answer we would have done it by now. But maybe there's some thought should be given to how to energize these, or make more meaningful these mandates, our dates, our deadlines or whatever that we have within the administrative apparatus of our Government.

Mr. MEAD. Every situation is different. And the weighing of the different factors is going to change from case to case. But I do not think it intrudes on the environmental laws unduly to require people to come to some closure within a period of time. There are lots of areas in life where a decision point has to be made. And one of the issues here is that the process can go on and on and on.

Mr. PETRI. Right.

Mr. MEAD. And you know——

Mr. PETRI. That said, what is the, what are the teeth? It's easy to say we require you.

Mr. MEAD. I take your point.

Mr. PETRI. Just like the Queen of Hearts, off with their heads, but nothing happens. This is Government and we're talking to each other. It's easy if it's a private company, as I said, or some other entity, you penalize them. Yes, sir.

Mr. BONASSO. Well, sir, it could be possible to have these agencies report to you on whether or not they have met the deadlines that are established. For example, in our law, we require on these repairs 60 day and 180 day conditions to be met, particularly if they're serious. So whether or not those deadlines have been met is important. We require the operator to meet those deadlines. So it's a question of whether or not the permitters can meet those deadlines.

Mr. PETRI. So at a minimum, have a reporting requirement and they certify they have met it or they have failed to, or they can't certify that they've met it, basically. And if nothing comes in the mail by that date, if we keep track then we can go after people, and the Secretary starts getting excited and people hopefully will respond.

Mr. BONASSO. It's a starting point, yes.

Mr. PETRI. Yes, sir.

Mr. Pascrell.

Mr. PASCRELL. Thank you, Mr. Chairman.

I want to follow up on the gentleman from South Carolina's thoughts.

The OPS, the TSA, the Department of Homeland Security, the Department of Energy we know have not written a memo of understanding to clarify who's going to take the lead on this issue, as I understand what you're saying. I think that this is extremely important. We don't have the memo, but I'd like to ask the question, do they communicate with one another and how often does that occur and what are they talking about?

Ms. GERARD. I could answer that question. Once the TSA was created, we jointly audited all the most critical systems together to see whether or not those systems can stand up to the guidelines that we have that are tied to the Homeland Department's threat levels. We also jointly conducted exercises with local officials in the community, law enforcement officials and we plan and conduct those exercises together on a regional basis, multiple operators in a region that's new since 9/11.

And I would say the communications are good, and that I think the Congressional Research Service put out a report on how well that was being handled a few months ago.

Mr. PASCRELL. What do you think can be done to get them to communicate more effectively? You know what we didn't discuss as deeply a few years ago was the question of security, you know, our threats we're considering to be from the outside, we're talking about threats from the inside. You're talking here of 20,000 integrity threats, which is about 25,000 miles of pipeline. Is that to you a high number, something we should be alarmed at?

Ms. GERARD. I think you should put that in the context of how much technology is advancing and the fact that there's much more sensitive tools to diagnose much smaller defects, and that what we see, the 20,000 is just a snapshot of what our inspectors saw on a given day and time. The actual report on those numbers will come in at the end of the year. So that was like a freeze frame picture that day, with that operator.

We think the fact that the operators are identifying these threats at the earliest possible stage and repairing them is a really good thing. It says the program is working, we're finding and fixing things much earlier before they get to be really big threats.

Mr. PASCRELL. In the final analysis, the company is the responsible party for the security of the pipeline, is that correct or incorrect?

Ms. GERARD. It's correct.

Mr. PASCRELL. It's correct.

Ms. GERARD. I do want to support, we believe that the Inspector General's importance of the MOU is a very important way of better defining roles, and we look forward to doing that at the soonest possible time. We do not want to cede our participation in security oversight. We think that we bring an important knowledge of operations to the table and that the process has worked well so far.

Mr. PASCRELL. I want to commend the Office of Pipeline Safety, which I didn't a few years ago. I think that you are carrying out, implementing the mandate of the Congress. We were really pretty vehement about this, if you remember, which brought about this legislation.

Do you think, any of you, that we have the wherewithal and the state of the art to inspect the distribution lines, which was referred

to before? Can we do that, can we take on that issue? Because we're talking about a heck of a responsibility here, as you well know.

Mr. MEAD. I think you can. And I think you should. In fact, OPS can speak for itself, but I think they feel that some form of IMP is also necessary. My concern is how long it is going to take before they say what the new process should look like. They have a workshop scheduled for, I think, this December with the natural gas distribution people, and I think there will be a public hearing where they will try to sort through that.

I do not think we should wait very long on this issue.

Mr. BONASSO. We're beginning this summer to inform the natural gas distributors that this is coming. And there are, while these lines are not piggable, they're too small and have a lot of bends in them, there are a number of integrity management approaches that can be applied to these lines. And that's what our approach is going to be. It's to apply the approach of integrity management, which means basically retiring components for cause, rather than waiting for them to fail, to this whole pipeline infrastructure.

Mr. PASCRELL. Mr. Chairman, I think it's obvious, it should be obvious that what the leadership of this Committee, and I commend the leadership of the Committee, has done to make sure that the Office of Pipeline Security and all the other agencies are starting to get on the same page, anyway, is save lives. That's the bottom line. That's what this Committee, why we moved in this area so vigorously.

I want to commend all of you for the cooperation that you've provided. It's a different hearing than it was a few years ago.

Mr. MEAD. May I just make a quick point on the security?

Mr. PASCRELL. Go ahead.

Mr. MEAD. I do not want to gloss over this issue. I do not know who is responsible for issuing rulemakings on pipeline security today. I do not know. I cannot tell you who is responsible for inspecting these pipelines for security. I cannot tell you who is responsible for enforcing the security requirements. In fact, the security plans that are out there now are in the form of guidance. That is unlike the pipeline safety program, which is compulsory. The security plans are voluntary and may be doing a wonderful job. But my concern is just who exactly is responsible for what.

Mr. PASCRELL. So, Mr. Mead, what you're saying is self-inspection is wonderful but how do you inspect the self-inspection? Who has ultimate responsibility and oversight? I think that's a follow-up on the gentleman from South Carolina's point, and that is, that's imperative. Who's following up on the fines?

Mr. MEAD. Right.

Mr. PASCRELL. Are we collecting those fines, are we stretching them out? I think, Mr. Bonasso, I think that's a very important question and we need to know that.

Mr. MEAD. Yes, he needs to know also whether we expect the pipeline safety inspectors to be security inspectors as well? And if not, who is going to do it?

Mr. PASCRELL. Should we be responding to that?

Mr. MEAD. Yes.

Mr. PASCRELL. We should be. Thank you.

Ms. GERARD. I wanted to clarify for the record about the distribution issue, which we completely agree with Mr. Mead on, that those distribution lines are entirely, or almost entirely under State jurisdiction. This goes back to Mr. Larsen's question, and I wanted to point out that the State pipeline safety program managers have been meeting with distribution companies under the leadership of the American Gas Association. They have been working on this at our behest for about two years.

So I'm hopeful that we can move along on this relatively quickly. But the States have to play a key role in defining the policies for integrity management for lines that are entirely under their jurisdiction.

Ms. SIGGERUD. I'd like to add something there as well. As you know, the integrity management program for the natural gas transmission pipelines is just beginning at this point. We think there is a good opportunity here to learn from that before moving into our, jointly with moving into some kind of jurisdiction over the distribution lines. Ms. Gerard rightly points out that this is, there is extensive reliance on States, if we move in this direction, and there may be resources used there as well.

Mr. PETRI. Thank you.

Mr. Boozman, any questions?

Mr. BOOZMAN. Thank you, Mr. Chairman. To the GAO, NTSB and IG, could you rate the progress of the OPS to date from A to F?

Mr. CHIPKEVICH. I would say there's significant improvement in response to the NTSB recommendations. In the last two years, since the last hearing, there have been 39 recommendations, all closed acceptable action. And there's none that are open unacceptable at this point.

Mr. MEAD. I give them an A for effort and a B plus in terms of the results.

Ms. SIGGERUD. We view the progress as generally good, as I outlined, particularly with regard to the integrity management program. We have the two outstanding issues that I mentioned already, that is looking at some of the key management elements, with regard to performance management, both with regard to the enforcement program and as well the research and development program that we have reported on in the past.

Mr. BOOZMAN. How about as far as moving things to the Federal railroad?

Ms. SIGGERUD. I'll take the first crack at that. I have not seen a detailed plan there. My understanding is that the Department's primary impetus for this is to try to get the Research and Special Programs Administration to focus more specifically on the departmental R&D mission and our other work looking at R&D in DOT would support that as an important effort that needs to be undertaken.

With regard to moving LPS to FRA or anywhere else in the organization, I think we need to look for the places where there are synergies between the type of oversight, inspection, education that OPS undertakes and those same types of activities elsewhere in the organization. Also, OPS is a relatively small organization of about 150 employees or so. Within FRA, it would be in a very much larg-

er organization. We would be concerned wherever it goes that it has sufficient attention and resources to its mission.

Mr. MEAD. I like the idea of bringing together a critical mass of the research arms in DOT, including the Bureau of Transportation Statistics. That said, this Committee has a long history with the Federal Motor Carrier Safety Administration and what happens when you make an agency into a subordinate part of another agency. In the case of Federal Motor Carrier Safety Administration, you took it out of the Federal Highway Administration and created an agency out of that. I can remember to this day the issue about its mission and how its mission was going to be safety.

So if you take OPS or the HAZMAT function out of the RSPA organization, I would recommend you be very careful about where you place it. There has been a lot of progress in the last few years, everybody at the table is saying that. You do not want to lose that. And one of the problems before was closeness to the industry. And so if you do chose to move it, move it to a place where safety is going to be its number one priority.

Mr. BOOZMAN. Go ahead, sir.

Mr. CHIPKEVICH. The NTSB has not seen any specific proposals on it and hasn't taken any position on it, the Board hasn't.

Mr. BOOZMAN. One final thing, Mr. Mead. You mentioned in your written testimony about an instance where the operator of a pipeline, knew that it was in bad repair, and it still took 3 years and 40 permits to fix. How many similar situations do we have out there right now? Do we have any estimate as far as what kind of ticking time bombs there are?

Mr. MEAD. Sir, I don't know. I do know that when we did our review, we discovered that in the 25,000 miles of hazardous liquid pipeline that have been inspected, they discovered 20,000 integrity threats. Of that, 1,200 required immediate repairs. I am not in a position to say whether the nature of those repairs would require relocating a pipeline or an environmental impact assessment. Perhaps Mr. Bonasso could answer that.

Mr. BONASSO. Well, there have been some other pipeline permitting experiences in the last year and a half where the delay in permitting repairs has caused us concerns. We don't have any statistics right now on how many of those there are, but this situation in California that spilled 85,000 gallons of gasoline is not the first time we've run into the problem.

Mr. BOOZMAN. Mr. Mead, one further thing. You mentioned the memorandum of understanding concerning this. The question I would have is how long has that been going on? And when is it going to be resolved? Are we going to have three or four years of it, just like the permitting? We're casting a stone at the other folks for dragging things on and yet the folks that are trying to solve the problem, in my mind, essentially, have the same problem.

Mr. MEAD. That memorandum of understanding got its final signatures just before this hearing. I think that suggests something about the power of oversight. You passed a law requiring this in 2002, and now here we are in 2004. It seems to me this all could have been done earlier.

Mr. BONASSO. We will be gathering some statistics on the question that you've asked relative to the number of incidents that may have permitting problems, and we'll submit them for the record.

Mr. PETRI. Mr. Oberstar.

Mr. OBERSTAR. Thank you, Mr. Chairman.

Ms. Gerard and Mr. Bonasso, I'm troubled that the OPS has not collected the fines imposed. Why?

Mr. BONASSO. We have taken the approach that we want to get the maximum result out of an incident, particularly relative to fines. If you're referring to the $3 million fine that we originally proposed——

Mr. OBERSTAR. Three million dollars in the Bellingham and two and a half million dollars in the Carlsbad case.

Mr. BONASSO. Right. Well, once the Department of Justice and the Environmental Protection Agency initiated cases, there was a combined Federal effort on these matters. The results were criminal and civil fines of over $100 million with additional preventive measures at the cost of nearly $75 million. That sort of makes our $3 million fine take a back seat, because these were, we were basically asked to decide what would be emphasized, and we stepped back to allow the EPA and the Department of Justice to take those cases.

Mr. OBERSTAR. Yes, but you have a responsibility, OPS has a role to play. We have charged you with that responsibility. I'll just make a parallel with the aviation sector. In 1989, there were something like $3 million in fines assessed against Eastern Airlines for failure to comply with safety requirements. There were items that were reported by mechanics to be fixed, the company refused to do so. Ultimately the first line supervisor for Eastern Airlines was caught on tape saying, we want no showstoppers around here. They knew they could thumb their nose at the FAA, which wasn't going to collect on the fines that were imposed.

There was a mentality within the FAA saying, we've exposed this company to the worst penalty we can impose upon them, that is public opprobrium for failure to conduct safety. But then they didn't impose the fine. I got on their case something fierce.

Ms. GERARD. Sir, we are doing better with the collection of the fines. The GAO is looking at that. In the two particular cases that you asked about, the Carlsbad case we have referred to the Department of Justice for prosecution. In the case of the Bellingham——

Mr. OBERSTAR. Prosecution to collect the fine, or what?

Ms. GERARD. To prosecute the case.

Mr. OBERSTAR. If you don't pursue, if you don't follow up on the responsibility and the authority that we've given you, then the companies are going to thumb their nose at the Federal Government interminably.

Ms. GERARD. We appreciate——

Mr. OBERSTAR. Learn a lesson from aviation. Learn the lesson from the Railroad Administration. And by the way, in the same breath, let me say that that is not a model of safety enforcement and safety prosecution. I strongly support the idea of taking OPS into the same status that we did with the Federal Motor Carrier Safety Administration, not bury it in the Federal Railway Administration where nothing will ever be done toward safety.

Ms. GERARD. We appreciate the added enforcement authority that you gave us in the Pipeline Safety Act, and we have a number of cases pending in which we'll be using that increased authority. In the case of the Bellingham case, our proposal was our first effort. I'm not an attorney, but my attorneys have said to me, when you're prosecuting, you do not use every prosecutorial tool. You use your best tool. And we thought the combined Federal effort was the very best result that we could give the citizens of Bellingham.

Mr. OBERSTAR. Well, it is good that there was a coordinated effort in here. But I don't want to see OPS backing away from the authority we've given you that is going to be the leverage you have to enforce compliance.

Now, Mr. Bonasso, to be clear, to get a clear understanding of what you said earlier in response to the capacity of pipelines, you said, with pipelines operating at 96 plus percent of capacity, we are concerned about requiring integrity inspections. Clarify what you mean by that.

Mr. BONASSO. OK, sir. We were not concerned about requiring the inspections. We're concerned that the——

Mr. OBERSTAR. That's what I wrote down as what you said.

Mr. BONASSO. The results of the inspections will cause us to have to close down these pipelines.

Mr. OBERSTAR. Yes. And?

Mr. BONASSO. And that will have an impact on the energy supply. That's what our concern is.

Mr. OBERSTAR. Supposing we take that to the airline industry and we say, let FAA say, oh, my goodness, taking an aircraft out of the inspection line for a de-check means it's going to deny a revenue stream to the air and we can't afford to do that. And then the door falls off, the landing gear fails or there is corrosion that causes a hull failure.

Ms. GERARD. We don't hesitate to shut it down. We shut down the Williams Pipeline——

Mr. OBERSTAR. Mr. Mead testified just a little bit ago that there are 20,000 integrity threats that need to be remediated and 1,200 that need immediate repairs. What are you doing about those?

Ms. GERARD. We've seen that they've been done. They've all been corrected.

Mr. OBERSTAR. That wasn't—that doesn't appear earlier. That's good. Well, then, but don't hesitate to do these inspections.

Ms. GERARD. We don't hesitate, sir. I would point out that we're using compliance orders, which has the effect of a court order, at three times the rate that we did in the past five years. And we're also increasing the size of our penalties. They're about two and a half times the size they used to be. So we're making progress in that area, and we're committed to using the tools that you've given us.

Mr. OBERSTAR. I want to see that, I want to see a more continued aggressive attitude. I've had 20 years experience with OPS, from the time that I chaired the Investigations and Oversight Subcommittee and found them sitting back, not doing their job, not aggressively going out and doing the job of Federal inspection, getting the State inspectors to do their job, following up on failures, and then there is a failure, then there is a pipeline, and people die.

Then the wings flap, the people say, oh, we've got to do something about it. This, we pass new legislation, giving you new authority, giving you new people, we want you to have a good enforcement, aggressive attitude.

Ms. GERARD. As do we. I would like to inform you, sir, that we put ten times the labor into a comprehensive integrity inspection than we did a standard inspection in the past. Ten times the labor, that's 240 hours, a 6 person team. So we're not the same organization that you're familiar with.

Mr. OBERSTAR. That's good. I'm glad to hear that. I will follow up, continued review of your operations.

Ms. GERARD. I appreciate that.

Mr. PETRI. I'm told the General Accounting Office is the expert on civil penalties and how they're working, if you have any comments on that.

Ms. SIGGERUD. Yes, I certainly do. Thank you for asking me that, Chairman Petri.

We have looked at the trend from 1994 through 2003 with regard to the number of penalties assessed and the dollar size of those penalties, and we have seen a change over that time, particularly from the 1995 to 1999 period, which I guess can be characterized as a partnering with industry period. And the 2002 to 2003 period, where we are seeing a turnaround in that, on general posture.

So we saw an increase, as I mentioned in my statement, an increase in the average number of penalties assessed from 2000 to 2003, the fact that there were a record number, so far in 2004, there are a high number. We also saw a general increase in the size of the penalties that were assessed over that time period, of over $11,000 on average.

Ms. GERARD. And our integrity management review cases really have not come out yet. So you can expect to see some proposed penalties in the very near future from those cases.

Ms. SIGGERUD. Ms. Gerard also mentioned the use of compliance action orders are very important. Those also increased between the two periods as you make a comparison.

Mr. PETRI. Well, this seems to fly in the face of the conventional wisdom of the relationship of the partisan regimes to the oil and gas industry. But the facts will speak for themselves, and we appreciate your bringing this to our attention.

I am curious to explore a little bit the comments that Mr. Mead and some others made about, as we were trying to adjust a lot of Government operations to the change in security. Isn't it true that something like pipeline security is basically an intelligence function before they have to gather—I mean, you can't have someone flying over or walking up and down every pipeline or area in the country to see if there's something suspicious going on.

People, I suppose, should be on the alert if they're doing maintenance or they're doing other functions. Maybe they should get some training for things to look for, if it looks like something. Maybe they already are or have. Because there are a lot of different, not just political terrorism, but other kinds of problems that might pose a threat.

So could you expand on that a little bit? Is there something we should be doing, or should we just let, would that be counter-

productive? Because I know people are working on this, and we don't want to make it any harder than it already is.

Mr. MEAD. I do not think there is any question that the intelligence function is very important, just like it is in aviation. We have seen this since 9/11 that the sharing and communication of intelligence is important. What I am speaking of here is the type of security plans you expect the pipeline companies to have, whether they are being adhered to, who is going to issue the rules, and who will do the monitoring. These are very basic questions that are now open. If you go over to the Transportation and Security Administration and ask ″Who here is responsible for pipeline security? How many people do you have?″

I think you might wonder where the people are who are actually going to do this. It is a basic question of who is going to be issuing the rules, who is going to be doing the enforcement, and who is going to do the inspections. Do you want DOT to do that? If so, let's be clear about it.

I also think that in pipelines, as in HAZMAT generally, there is a very close intersection between safety and security that you do not find in a lot of other areas. The result of a safety problem can be very similar to the result of a security problem.

Mr. PETRI. Yes.

Mr. MEAD. I would defer to Mr. Bonasso to speak to this more fully.

Mr. BONASSO. I'd like to agree, certainly, with what Mr. Mead is saying, and that's particularly the confluence of safety and security and how improved safety not only has improved reliability but it's certainly improved security in the areas of hazmat and pipelines. But in my visits to some of the pipeline companies, I know that they are providing regular surveillance to those lines. They have utilized new technologies to do security. But we are relying on their particular self-interest to provide the necessary security for these lines.

So a combination of the private sector's interest, as well as intelligence, is what's playing right now.

Ms. GERARD. The hazmat program does have security authority that we don't have, which we think would be equally relevant, as mentioned by Mr. Mead. The example of a control room, for example, prior to 9/11 a particular pipeline had a control room in a public building that had a parking garage under it and the wrong kind of people could have driven in with the wrong kind of explosives and severely damaged the operations of that particular operator. That of course has been completely redone since 9/11.

Mr. PETRI. Yes.

Ms. SIGGERUD. If I may chime in here, I'd like to point out that GAO actually has an outstanding recommendation in this area. The pipeline mode is not the only mode where the relationship between the Department of Homeland Security, Transportation Security Administration and the Department of Transportation is unclear with regard to who is responsible for security of these modes. We made a recommendation that there should be a memorandum of agreement on all of these modes, including pipelines. We do have a Department of Transportation agreement on that, but the De-

partment Homeland Security has not concurred with that recommendation.

Mr. PETRI. I'd assume that there are teams within the global, which is a global pipeline industry, that are working on this. Because if we think we have problems, you can imagine what kinds of problems they have in Saudi Arabia and a variety of other countries. So I'm sure they've developed techniques and they're at a level of experience and of infrastructure way beyond what most of our, fortunately what most of us have had to face within the continental United States.

So you think the premise should be that we should enhance the Office of Pipeline Safety security functions, rather than trying to duplicate, and then have you coordinate for intelligence and broader security issues with the terrorism operation? Is that correct?

Mr. MEAD. That is how I feel. I know I work for the Department of Transportation, but I think they were doing a very decent job in pipeline security and HAZMAT after 9/11 but before the Homeland Security Department was created. Now there is this confusion as to who is responsible and what are the expectations. I know the Department, Mr. Chairman, really wants to have a memorandum of understanding. My colleague from GAO points out that this is an issue that transcends into transit, railroads, and the other modes as well.

Ms. GERARD. If I could also point out, the issue was complicated for us, because while TSA focuses on transportation, we coordinate closely with all the energy agencies, and because many of the pipeline companies are also electric, we need to consider consistency with electric policy and the organization called NERC.

Mr. PETRI. Very good. Well, we will be working with you as this goes forward. Are there other questions? Yes, Mr. Lipinski.

Mr. LIPINSKI. Thank you, Mr. Chairman. First of all, Mr. Mead, you testified that the natural gas distribution lines are not subject to integrity management. Just considering the fact that the number of fatalities resulting from accidents involving natural gas distribution lines has more than doubled over the past three years, can you elaborate on what can be done in the near term to ensure that these pipelines are subject to integrity management?

Let me also ask you the question, just to make sure I understand this, now, the natural gas distribution line is the one that really goes to the user itself, correct? So there would be natural gas lines going to residential communities, to industrial communities?

Mr. MEAD. Yes. They are narrow pipes. I think they run three to five inches in diameter. And as I said, they bend and curve, and they go to the end user. They in fact make up most of the pipeline mileage.

Mr. LIPINSKI. Eighty-five percent or so of the mileage?

Mr. MEAD. Yes, sir.

Mr. LIPINSKI. So what ideas, since we don't have any requirement in regards to the distribution pipelines, what do you think that we should have, number one, and number two, in the short term, before we can pass any legislation or before these folks can come up with some ideas on how to check them out, do you know of anything we can do in the short run that they have the ability and the authority to do at the present time?

Mr. MEAD. First I think every operator of natural gas distribution lines ought to be required to have an inspection plan, so that the inspection expectations are clear. Second, is mapping. Congress exempted gas distribution lines from the mapping requirement, so OPS does not have a national map of where all these pipelines are. The local companies may very well have one. I would hope so.

Mr. LIPINSKI. May very well have one. But we don't——

Mr. MEAD. I do not know whether they do or not. We should have a mapping requirement. And a third thing we should have is what we have with hazardous liquid and natural gas transmission: repair criteria that Mr. Bonasso was alluding to earlier. Those two basic elements do not deal with the pigging issue for natural gas distribution. The technology may be there some day, but it is not there now.

Mr. LIPINSKI. Did we exempt these because it's so, there are so many of them and it's so hard to do any kind of real inspections on them? Is that really the fact, or is it the fact that so many of these are in one State and the Federal Government has just left it up to the States to try to manage this particular problem?

Mr. MEAD. I think it was a combination. The reason that appears frequently was that the distribution lines are not piggable. Pigging was central in the debate in the 2002 legislation. You cannot credibly say that these pipelines are piggable. So I think that was an important reason. What Congress did, though, was require hazardous liquid and natural gas transmission pipelines to have an integrity management plan. That compulsory requirement, though, did not apply to gas distribution ones. Congress did not prohibit OPS from requiring plans, it just said that gas distribution pipelines did not require it.

Mr. LIPINSKI. We just passed the buck to OPS.

Mr. MEAD. Well, in effect.

Mr. LIPINSKI. But it just seems to me that when you have 85 percent of the pipelines as the distribution pipelines and that these pipelines really are in residential communities, industrial communities, that the potential for security problems, for safety problems causing casualties among the general populace is very considerable. I think we really should be trying to address that.

Mr. MEAD. The infrastructure is getting older for these pipelines. I think that is another concern that recommends some type of IMP being applied to them.

Ms. GERARD. I'd just like to provide a little context. While we completely agree with the need for an integrity program and the derivation of integrity management in the law did come from the original pigging requirement and pigging was a transmission and liquid issue, there's a huge body of regulation that currently exists and applies to the distribution pipelines that addresses the single threats to them.

And the immediate threat to a distribution pipeline is being struck from the outside. They're in the areas where people live, and there's a much higher incidence of excavation related damage likely to occur and be the cause of failure. There's a tremendous amount of excavation damage prevention activities, as Mr. Chipkevich testified, that are in place in the distribution pipelines. so that's a

very important element of what would be an integrity management program. That effort is already underway.

Plastic piping is used in distribution pipelines. There are very different operational configurations. So we need an approach that is tailored to that system configuration. But I wanted to assure you that there's a huge body of regulation in place that companies comply with, that we enforce and that the damage prevention effort would have to be a primary component of an integrity management program for a distribution pipeline.

Mr. LIPINSKI. Now, enforcement, is it on the State level, or is it on the Federal level?

Ms. GERARD. Yes, except for municipalities like the City of Richmond. In some cases the State may not take entire jurisdiction of everything within the State. So I believe that our eastern region enforces pipeline safety in the City of Richmond.

Mr. LIPINSKI. So within the State of Illinois, does the City of Chicago do their own enforcement of pipeline safety?

Ms. GERARD. I believe the Chicago jurisdiction is taken by the State of Illinois. There are some exceptions, and I mentioned Richmond as an example.

Mr. LIPINSKI. OK. Well, that just seems to me to be an area that has great potential problems, and it's something that I think we should not be addressing more frankly on the Federal level.

Mr. MEAD. It is true that there are more excavation related problems with the gas distribution pipelines than with the others, but it is less than half. The other half of the accidents on gas distribution is caused by corrosion, material failure, human error, and things like that. These are caused that an IMP can help address.

Ms. GERARD. And the replacement of older cast iron pipe, uncoated pipe. Replacement programs are of course something that the States in their oversight have put a very high priority on, and they have set goals within each State to be sure that those types of pipes that are not cathodically protected, for example, are replaced. That would be an important component of an integrity program for distribution.

Mr. LIPINSKI. Has the plastic pipe been accepted all across the country now, or are there still some areas where it's not allowed to be used?

Ms. GERARD. I'm not aware of any particular prohibition in a particular State on plastic pipe. Everywhere.

Mr. LIPINSKI. It's permissible everywhere?

Ms. GERARD. Yes.

Mr. LIPINSKI. Thank you. I have one last question. OPS is responsible for establishing safety standards for onshore liquified natural gas, LNG facilities. Considering the renewed interest in liquified natural gas facilities in the past few months, and the fact that over 40 applications have recently been filed to construct onshore LNG facilities, does OPS have adequate staff and resources to carry out its safety responsibilities?

Ms. GERARD. The Administration has asked for some additional personnel in that area. At the time that we asked, I believe there were only 15 applications pending. Now there's 44. It's a very important responsibility that we play to support the FERC in expediting the permits for those facilities. So we are concerned about how

we will be able to do all the review and the design and pay for it. We currently are only authorized to collect fees once the LNG facility is in operation. Now we have a whole new line of work to review these facilities at the design stage, and we don't have an ability to charge for the design stage. I personally think that the company that's deriving the benefit should pay the bill as opposed to the rest of the industry, as a matter of equity.

Mr. LIPINSKI. Would that necessitate us passing a law to do that, or could you do that by regulation, or someone do it by regulation in the Department of Transportation?

Ms. GERARD. No, we would need a legislative, a minor technical fix to insert the design fee.

Mr. LIPINSKI. Anyone else have any comments on either one of these two subjects that I have been talking about?

Mr. Chairman, I ask unanimous consent that all members be able to submit questions for the record.

Mr. PETRI. Without objection. And I will be submitting a question in a somewhat technical area for written response.

Mr. Boozman, any further questions?

Mr. BOOZMAN. No, thank you, Mr. Chairman.

Mr. PETRI. Well, we again thank you very much for the work that you did for your testimony. It's encouraging to have a hearing where people come in, report at least some considerable progress. That's very good to hear indeed. So congratulations, and don't rest on your laurels. Obviously tomorrow could be a different day. We hope that work and vigilance does result in averting accidents in this industry.

Thank you very much. This hearing is adjourned.

[Whereupon, at 11:35 a.m., the subcommittee was adjourned, to reconvene at the call of the Chair.]

STATEMENT OF SAMUEL G. BONASSO, P.E.
DEPUTY ADMINISTRATOR
RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION
U.S. DEPARTMENT OF TRANSPORTATION

BEFORE THE
SUBCOMMITTEE ON
HIGHWAYS, TRANSIT AND PIPELINES
COMMITTEE ON TRANSPORTATION AND
INFRASTRUCTURE
UNITED STATES HOUSE OF REPRESENTATIVES

June 16, 2004

Mr. Chairman, my name is Samuel Bonasso. I am the Deputy Administrator of RSPA, the Research and Special Programs Administration of the U.S. Department of Transportation. With me is Stacey Gerard, Associate Administrator for the Office of Pipeline Safety (OPS).

Thank you for this opportunity to discuss our strategy and our long term prospects for improved safety and reliability of the Nation's pipeline infrastructure. We greatly appreciate this subcommittee's attention and support for our work.

Under Secretary Mineta's leadership, RSPA and OPS have made great strides in meeting the mandates set forth in the Pipeline Safety Improvement Act (PSIA) of 2002. My testimony today will address our responses to these mandates, including specific implementation issues, and the results of our actions. Further, I want to make you aware of potential short and near term risks of reduced pipeline capacity and energy supply due to required pipeline testing and repairs.

The Nation's pipelines are essential to our way of life. The 2.3 million miles of natural gas and hazardous liquid pipelines carry nearly two-thirds of the energy consumed by our Nation. Pipelines are the safest and most efficient way to transport the enormous quantities of natural gas and hazardous liquids across land used by our country.

Recent increased attention to the need for pipeline safety is rooted in demographic changes taking place in our country. Suburban development in previously rural areas has placed people closer to pipelines. This increases the risk that pipeline accidents, although infrequent, can have tragic consequences. Expansion and development also means more construction activity near pipelines— the leading cause of pipeline accidents.

Pipeline safety is more than inspecting pipelines. It involves 1. having better information to understand safety problems, 2. knowing where to set the bar in safety standards, 3. advancing technology to find and fix those problems, 4. partnering with state and local governments to oversee this critical infrastructure, and 5. building alliances to prevent damage and educate the public about how to live safely with pipelines.

Pipeline safety is a top priority for the Bush Administration and for Secretary Mineta, personally. With their support, RSPA and OPS have strengthened each of these five elements in just a few years.

Expanded enforcement has been an important approach in strengthening the pipeline safety program. In the past 10 years, 57 inspectors have been added to the OPS staff, from 28 inspectors in 1994 to 85 inspectors today. Our partnerships with the states, such as our agreement with the Arizona Corporation Commission, provide several hundred more inspectors.

I. We Are Implementing A Plan

With the enactment of the PSIA, we embarked on a new, more comprehensive and informed plan to identify and manage the risks that pipeline operators face and that pipelines pose to our communities. By collecting and using better information about pipelines, today we know more about pipelines, the world they traverse, and the consequences of a pipeline failure.

1. Higher Standards

We have raised the standards for pipeline safety, through integrity management requirements and 17 other regulations, and incorporated 30 new national consensus safety standards into our regulations.

2. Better Technology
To improve the technology available to assess and repair pipelines, we have awarded almost eight million dollars, for three dozen research projects since March 2002.

3. Stronger Enforcement
Our inspections are much more rigorous. Today, we spend 240 hours on a comprehensive integrity management inspection, in contrast to 32 hours in 1996 for a standard pipeline safety inspection.

We have adopted a tough-but-fair approach to improving enforcement, making heavier use of large fines, while guiding pipeline operators to meet higher standards. We have initiated steps to ensure that penalties are collected and acknowledged promptly.

4. Better States' Partnership
We have strengthened our partnerships with state pipeline safety agencies, such as the Arizona Corporation Commission, through increased training, shared inspection data bases, a distributed information network to facilitate communications, and policy collaboration.

5. Cleaning Up Our Record
Our new record as a regulator is important to us. In the past three years, the OPS has eliminated most of a 12-year backlog of outstanding mandates and recommendations from Congress, the National Transportation Safety Board, the DOT Inspector General, and the GAO. Over the past 4 years, we have responded positively to 41 NTSB safety recommendations and are working to close the remaining 10 recommendations.

6. Preparing Partners and Going Local
Helping communities to know how they can live safely with pipelines is a very important goal. We cannot succeed in improving pipeline safety without enlisting the help of local officials. We are moving on a number of fronts:

- Working with others, we have proposed to incorporate a new standard for public education in regulations to ensure community officials and

citizens have essential safety information they need to make informed decisions;

- We have commissioned a study by the Transportation Research Board of the National Academy of Sciences on issues of encroachment and maintenance on pipeline rights-of- way which will report results in July.
- We have enlisted the help of the local fire marshals to bring information and guidance to communities to build understanding of pipeline safety and first responder needs, to help identify high consequence areas in communities, and to provide an understanding of LNG operations.
- Similarly, to foster safety and environmental protection on Tribal Lands, we are working toward a partnership with the Council of Energy Resource Tribes.

II. Responding to the Pipeline Safety Improvement Act of 2002 (PSIA)
Pipelines are the arteries of our Nation's energy infrastructure and critical to the Nation's viability and well being. The Congress recognized the critical importance of pipelines when it passed the Pipeline Safety Improvement Act of 2002.

The actions described above are consistent with the PSIA, which also has given us new mandates. Under Secretary Mineta's leadership, RSPA and OPS are aggressively responding to these new mandates.

1. Integrity Management
We have completed the most significant improvement in pipeline safety standards by finalizing regulation of integrity management programs for hazardous liquid and natural gas transmission operators. Going beyond the PSIA requirements, we are studying, in conjunction with the American Gas Association, the potential for an integrity management program that would be appropriate for gas distribution and municipal operators. We and our state partners have completed comprehensive inspections of large hazardous liquid operators. During these inspections, we observed that operators had completed over 20,000 repairs, 4,400 of which were time sensitive and important to find and fix expeditiously.

2. Operator Qualification
We have completed half of the reviews of interstate operators' qualification programs and expect to meet the 2006 statutory deadline.

States have made similar progress. We plan to incorporate improved consensus standards for the qualification of pipeline operators for safety critical functions when the standards are completed later this year.

3. Public Education and Mapping
We believe that communication between Federal, State and local government, the operator and the public about how to live safely with pipelines is an important element in helping to assure the safety of our Nation's energy transportation pipeline infrastructure. Actions are underway to improve communications with state and local officials about actions they can take to protect their citizens and pipelines. We are improving opportunities for communities to understand pipeline safety and to take local action as required by the PSIA. We completed the National Pipeline Mapping system and we worked with pipeline operators to complete, by the December 2003 deadline, self assessments of their public education programs against new, higher standards.

To respond to the need for improved public awareness of pipelines, OPS, the National Association of Pipeline Safety Representatives (NAPSR), and the pipeline industry have cooperated to develop a national consensus standard— American Petroleum Institute's Recommended Practice 1162 (RP 1162) for public education. RP1162 is designed to help pipeline operators meet new standards established in the PSIA. It requires operators to identify audiences to be contacted, effective messages and communications methods, and information for evaluating and updating public awareness programs. We have proposed incorporation of RP 1162 into our regulations.

We are starting a Crisis Communications Initiative to improve communications following an accident. In July, we will host a workshop to develop the framework for this initiative, including a pilot program on crisis communications and interagency relationships. We expect this initiative to meet national objectives and to be complementary to the Homeland Security's National Response Plan, FERC's Liquefied Natural Gas efforts, and the National Association of Fire Marshal's education program.

4. Damage Prevention
Working with the Common Ground Alliance and the Federal Communications Commission, we have provided for a single, national

three-digit number for one call systems, most likely 811. The Federal Communications Commission is expected to finalize this action later this year. This will allow all Americans to take one action to protect all pipelines from excavation damage— the major cause of pipeline damage and failure. By making it simpler to call one number to mark underground lines, we expect more people to use this important prevention service.

5. Research and Development
To provide a vision for the advancement of technology, we developed a memorandum of understanding with the Department of Energy and the National Institute of Standards and Technology for research planning, and have completed a five year plan. The plan includes a detailed management strategy for research solicitation and procurement; technology transfer and application of results; coordination and collaboration with other agencies, industry and stakeholders; approaches to communicate project findings; and methods of optimizing the use of resources.

6. Security
Since 9/11, the Department has devoted considerable attention to security across all modes of transportation, including national pipeline security. While the PSIA did not speak specifically to security, pipeline system integrity and security are inextricably linked. We maintain clear expectations for critical pipeline operators' security preparedness. With the Department of Homeland Security (DHS), we verify industry action by conducting audits of all major pipeline operators' security preparedness. OPS expanded its oil spill emergency response exercise program to include focus on security and law enforcement for maintaining the reliability of energy supply. The Department plans to continue working closely with DHS on pipeline security issues.

7. Interagency efforts to Implement Section 16 of the PSIA
Section 16 of the PSIA requires agencies with responsibilities relating to pipeline repair projects to develop and implement a coordinated process for environmental review and permitting. The interagency working group currently has five efforts underway to:

- refine early notification and Federal involvement procedures;
- identify electronic communication methods that would expedite and streamline review;

- establish practices that would reduce or minimize effects to the environment such that reviews would be expedited; and
- refine permitting and review procedures for time-sensitive pipeline repairs consistent with our regulatory and statutory obligations.

III. Keeping the Energy Infrastructure Viable

The Nation's economic viability and well-being depend on the enormous quantities of oil, fuel and natural gas transported safely, efficiently and at low cost by pipelines each and every day. The energy pipeline infrastructure in the United States represents a $31 billion investment in over 2 million miles of pipeline technology that is essential to American economic interests— a myriad of goods and services as well as millions of jobs are made possible and supported by this transportation infrastructure.

Federal integrity regulations and PSIA have significantly increased the requirements on operators to test the integrity of this infrastructure, discover any defects and make repairs before ruptures or leaks can occur during the implementation of this important safety initiative. This initiative could take more pipelines temporarily out of service for inspection, assessment and repairs and could impact the delivery of energy.

There are two aspects of this safety initiative which are being given special attention by DOT and other Federal agencies.

First, we, from our safety purview, are the agency that sees the results of the testing of multiple pipelines by multiple operators across the regions of our Nation. Our experience suggests that many repairs will be required under our integrity management regulations— potentially tens of thousands of repairs annually, and perhaps clustering in a particular region of the country.

Second, while a pipeline operator awaits permits for repairs, the operating pressure of the pipeline usually needs to be reduced to maintain a safety margin. There is a risk that the amount of pressure reductions required pending permitting of repairs could measurably reduce the energy capacity of pipeline systems in certain regions. Depending on where pipelines are located and how energy markets are

impacted, pressure reductions during peak demand periods could result in fuel shortages and price increases.

The Congress recognized this potential problem and required Federal agencies to participate in an Interagency Committee to facilitate the prompt repair of our pipelines. Work is ongoing with the other relevant Federal agencies to develop guidance to ensure that any necessary Federal permits for repairs of pipelines in danger of rupture can be coordinated and expedited.

Some of the specific issues the Interagency Committee is addressing include:

- Feasibility of providing Federal permitting agencies with advance information about operator test schedule. Obtaining this information in advance could help agencies anticipate resources needed for permitting repairs and to exchange information about required actions as soon as possible. Pipeline operators, however, are concerned that by providing this information they might be expected to meet the schedule regardless of factors that are beyond their control (weather, availability of appropriate equipment and certified crews, etc.). Operators are also concerned that the testing schedules could become public information that can not be protected as proprietary information, releasing business-sensitive and possibly security-sensitive information.

- Methods to expedite environmental reviews. The Interagency Committee is examining the required consultative processes for permitting repairs in order to determine if actions can be taken that would enable operators to carry out repairs quickly while meeting safety standards.

- Potential energy supply impacts of multiple repairs in a regional area. As we have experienced recently in gasoline markets, a small change in pipeline supplies can have a dramatic impact on fuel price. In a situation with multiple pipelines in a regional area in need of repair, OPS would work with operators to prioritize the order of repairs and maintain safety. A time sensitive repair might qualify for expedited permitting because of the potential energy supply impact. Maintaining pipeline capacity and throughput is essential in

supplying fuels to regional markets and vital to the Nation's industries.

IV. We are achieving results.
Comparing years 1999 to 2003 to the previous five years, from 1994 to 1998, hazardous liquid incidents have decreased by 25 percent. By 2003, the volume of oil spilled had decreased by 15 percent from the previous 10-year average.

Excavation accidents have decreased over the past ten years by 59 percent. This is largely the result of work with our state partners and the more than 900 members of a damage prevention organization we initiated – the Common Ground Alliance (CGA). The CGA has formed 22 regional alliances to foster damage prevention activities and will soon announce two additional regional alliances, including a western regional common ground alliance, which is the result of a three-state effort led by the Arizona Corporation Commission.

In closing, I want to reassure you, Mr. Chairman, and all of the members of this subcommittee, that Secretary Mineta, RSPA and the hardworking men and women in the Office of Pipeline Safety share your strong commitment to improving safety, reliability, and public confidence in our nation's pipeline infrastructure.

I will be happy to take your questions.

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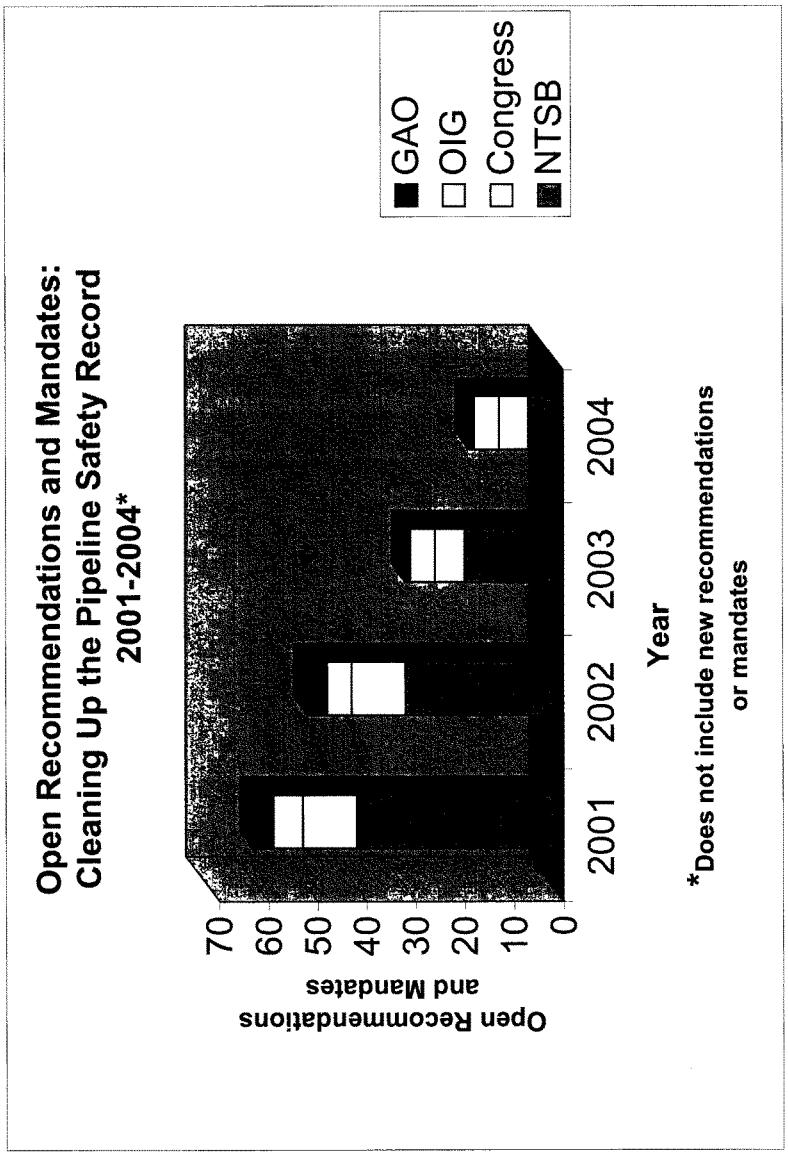
Open Recommendations and Mandates:
Cleaning Up the Pipeline Safety Record
2001-2004*
GAO
OIG
Congress
NTSB
Open Recommendations and Mandates
0
10
20
30
40
50
60
70
2001
2002
2003
2004
Year
*Does not include new recommendations or mandates

RSPA Enforcement Trends

Type of Action	Original Enforcement Policy (1990-1994)	Alternative Approach to Enforcement (1995-1999)	Current Policy (2000-2003)
Inspector Hours per Inspection	20	32	240
Average Number of Inspections Conducted per Year	534	924	821
Average Number of Civil Penalties Proposed per Year	63	19	42
Average Proposed Civil Penalty	$16,500	$19,000	$45,000†
Number of Corrective Action Orders	11	9	34

† This average increases to $91,000 if proposed penalties for the Olympic and El Paso cases are included

Suisun Marsh Permitting Timeline

Permitting Activity	2002 Qtr 3	2002 Qtr 4	2002 Qtr 1	2002 Qtr 2	2002 Qtr 3	2002 Qtr 4	2003 Qtr 1	2003 Qtr 2	2003 Qtr 3	2003 Qtr 4	2004 Qtr 1	2004 Qtr 2
Integrity Management Repair Timelines												
Integrity Management 30-day Immediate Repair	Repair pipeline or reduce pressure (reduce throughput)											
Integrity Management 60-day Time Sensitive Repair	Repair pipeline or reduce pressure (reduce throughput)											
Integrity Management 180-day Time Sensitive Repair	Repair pipeline or reduce pressure (reduce throughput)											
Federal Permits												
U.S. FWS Section 7 Consultation and Biological Opinion												
U.S. Army Corps of Engineers 404 Permit												
U.S. NOAA NMFS Section 7 Consultation and Biological Opinion												
State Permits												
CSLC Final Environmental Impact Report Certification												
CSLC Notice to Proceed												
CSLC General Lease												
SWRCB Section 401 Certification												
San Francisco Bay Conservation & Development Commission Permit												
RWQCB Central Valley Region NPDES Permit												
State Historic Preservation Office Eligibility Determination												
SWRCB NPDES Permit for Storm Water Discharges												
Local Permits												
City of Martinez Conditional Use Permit												
Yolo County Condition Use Permit												
Solano County Marsh Development Permit												
Solano County Mutual Agreement												
City of Fairfield Marsh Development Permit												
City of Davis Approval												
West Sacramento Conditional Use Permit												

National Transportation Safety Board
Washington, D.C. 20594

Testimony of
Bob Chipkevich, Director
Office of Railroad, Pipeline and Hazardous Materials Investigations
National Transportation Safety Board
Before the
Subcommittee on Highways, Transit and Pipelines
Committee on Transportation and Infrastructure
U.S. House of Representatives
Regarding Pipeline Safety
June 16, 2004

Good morning Chairman Petri and Members of the Subcommittee. My name is Bob Chipkevich, and I am Director of the National Transportation Safety Board's (NTSB's) Office of Railroad, Pipeline and Hazardous Materials Investigations. NTSB Chairman, Ellen Engleman Conners, has asked me to represent the Board and its 429 dedicated professionals today to discuss NTSB's safety recommendations concerning pipeline safety issues, and it is my privilege to do so.

Pipelines carry nearly two-thirds of the energy consumed in the United States. Nearly 200,000 miles of hazardous liquid pipelines deliver approximately 14.4 billion barrels of petroleum products annually, and over 2 million miles of pipe carry more than 21 trillion cubic feet of natural gas annually.

Since I last testified before this Subcommittee in February 2002, the Research and Special Programs Administration (RSPA) has completed several significant activities to improve pipeline safety, including pipeline integrity assessment programs, damage

prevention activities and improved data collection--all actions that are responsive to NTSB recommendations.

In February 2002, there were 42 open pipeline safety recommendations to RSPA, and 6 were classified as unacceptable action. Today, there are 10 open pipeline safety recommendations. All are in an open acceptable action status.

In February 2002, RSPA's historical acceptance rate for pipeline safety recommendations was 69.9 percent, the lowest of all modal administrations. Today, that acceptance rate is 74.9 percent--a significant improvement that spans the period from 1967 to 2004. Since February 2002, 39 open pipeline safety recommendations have been closed, all with acceptable action.

In December 2000, RSPA issued a final rule requiring hazardous liquid pipeline operators to establish pipeline integrity assessment programs and, in December 2003, similar requirements were mandated for natural gas transmission lines. As a result, these pipeline operators are required to initiate and follow a pipeline integrity management program for high consequence areas and to evaluate entire pipelines for lessons learned in high consequence area assessments. Critical areas of the program are the implementation of required testing to identify and remedy corrosion and other time-dependent pipeline damage, and validation of the safety of pipelines operating at their maximum operating pressures. The pipeline operators must then address any risks to pipeline safety, including repairs and pressure reductions as necessary.

The Safety Board has supported RSPA's rulemaking efforts in this area. And, as a result of these new requirements, on April 21, 2004, the Safety Board closed as acceptable action safety recommendations that had been open since 1987 calling for such requirements.

However, RSPA must now ensure that pipeline operators implement effective integrity management programs. As the Safety Board has previously noted, risk management principles, if properly applied, can be powerful tools to identify the risks to pipeline integrity and should lead operators to take action to mitigate those risks. Quantifying inputs into various risk management models, however, can be difficult and subjective. To ensure that the new rules for risk-based integrity management programs are effectively employed throughout the pipeline industry, it is important that RSPA establish an effective evaluation program and aggressively examine and monitor operators' pipeline integrity programs.

Excavation damage continues to be a leading cause of pipeline accidents. As a result of NTSB accident investigations, we have over the years issued numerous safety recommendations regarding this issue. The Safety Board believes that RSPA's use of the Common Ground Alliance (CGA) has been an effective means of addressing factors that contribute to excavation damage. The CGA has been able to develop consensus on safety issues affecting underground utilities and the construction industry, and its "Best Practices" for preventing damage to underground facilities can be an important tool. The Safety Board believes the CGA's role in helping RSPA improve damage prevention programs and technologies can be effective in reducing excavation-related accidents.

RSPA also has responded effectively to safety recommendations for improved pipeline mapping requirements and data collection. Data that is required to be reported on pipeline accident reports to RSPA, as well as efforts to improve the development of exposure data, can help both RSPA and the industry more effectively target factors that can reduce pipeline accidents due to excavation activities. The new reporting requirements include information that the Safety Board believes also will assist RSPA with operator evaluations and trend analyses.

Work needs to continue in several areas to reduce accidents caused by excavation damage. We are aware that RSPA is continuing to fund several research projects that can help address excavation damage safety issues. These include the following:

- improved pipeline location technologies;
- improved inspection technologies to find pipe defects;
- real time monitoring to detect mechanical damage and leaks;
- improved trenchless technologies to avoid potential damage to underground facilities; and
- new materials for pipe with greater toughness characteristics.

However, there is some action that we believe can be taken now to reduce the consequences of excavation accidents. In 2001, after investigating an accident in South Riding, Virginia, the Safety Board again recommended that RSPA require gas pipeline operators to install excess flow valves in all new and renewed gas service lines when the operating conditions are compatible with readily available valves. Excess flow valves can effectively stop the flow of natural gas service when service lines are broken or joints

are pulled apart during excavation related activities. RSPA requires gas distribution operators to notify customers about the availability of these valves, but only about half of the operators currently install these safety valves as an operating practice. RSPA had contracted with the Volpe National Transportation Center to examine excess flow valve issues, including current technologies and standards. Because excavation activities are a leading cause of pipeline accidents and because excess flow vales can effectively shut off the flow of gas to damaged service lines, the Safety Board believes that excess flow valves can reduce the consequences of these types of accidents and that action on this safety issue needs to move forward.

Other safety issues with open recommendations address the need for determining the susceptibility of some plastic pipe to premature brittle-like cracking problems; ensuring that pipelines submerged beneath navigable waterways are adequately marked and protected from damage by vessels; and requiring that new pipelines be designed and constructed with features to mitigate internal corrosion. Actions on these safety recommendations are currently classified as acceptable action by the Board.

Mr. Chairman, that completes my statement, and I will be happy to respond to any questions you may have.

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To: Rep. Thomas E. Petri (WI-06)
Chairman, Subcommittee on Highways & Transit

Rep. William O. Lipinski (IL-03_
Ranking Member, Subcommittee on Highways & Transit

From: Rep. Eddie Bernice Johnson (TX-30)

Date: Wednesday, June 16, 2004

RE: PIPELINE SAFETY & THE OFFICE OF PIPELINE SAFETY HEARING

I will be involved in a Full Science Committee Markup today, Wednesday, June 16, 2004, from 10 a.m. – 2 p.m. In the event I am unable to attend the hearing I would like this notification included in the record.

Before the Committee on Transportation and Infrastructure
Subcommittee on Highways, Transit and Pipelines
United States House of Representatives

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Actions Taken and Actions Needed To Improve Pipeline Safety

Statement of
The Honorable Kenneth M. Mead
Inspector General
U.S. Department of Transportation

Mr. Chairman, Ranking Member, and Members of the Subcommittee:

We appreciate the opportunity to testify today on the progress that the Office of Pipeline Safety (OPS) has made to improve pipeline safety and the actions that still need to be taken.

OPS is responsible for overseeing the safety of the Nation's pipeline system, an elaborate network of more than 2 million miles of pipeline moving millions of gallons of hazardous liquids and more than 55 billion cubic feet of natural gas daily. The pipeline system is composed of predominantly three segments—natural gas transmission pipelines, natural gas distribution pipelines, and hazardous liquid transmission pipelines—and has about 2,200[1] natural gas pipeline operators and 220 hazardous liquid pipeline operators.

In March 2000, the Office of Inspector General reported[2] that weaknesses existed in OPS's pipeline safety program and made recommendations designed to correct these weaknesses. These recommendations were later mandated in the Pipeline Safety Improvement Act of 2002. This Act required us to review OPS's progress in implementing our recommendations. Our testimony today is based largely on the results of this second review.[3]

Historically, OPS was slow to implement critical pipeline safety initiatives, congressionally mandated or otherwise, and to improve its oversight of the pipeline industry. The lack of responsiveness prompted Congress to repeatedly mandate basic elements of a pipeline safety program, such as requirements to inspect pipelines periodically and to use smart pigs[4] to inspect pipelines.

When we last testified before this Subcommittee on pipeline safety in February 2002, our testimony included actions taken and actions still needed to implement the recommendations in our March 2000 report. While much remained to be done at that time, today we can report that OPS has shown considerable progress in implementing our prior recommendations.

Before proceeding to the core of our statement, we would like to highlight OPS's progress in two key areas—clearing out congressional mandates and closing out National Transportation Safety Board (NTSB) safety recommendations. This is a

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[1] Of the 2,200 operators of natural gas pipelines, there are approximately 1,300 operators of natural gas distribution pipelines and 880 operators of natural gas transmission pipelines.

[2] OIG Report Number RT-2000-069, "Pipeline Safety Program," March 13, 2000.

[3] OIG Report Number SC-2004-064, "Actions Taken and Needed for Improving Pipeline Safety," June 14, 2004.

[4] A "smart pig" is an instrumented internal inspection device that traverses a pipeline to detect potentially dangerous defects, such as corrosion.

direct result of attention at the highest levels in DOT management, namely the Secretary.

- ***Clearing out most, but not all, of the congressional mandates enacted in 1992 and 1996.*** Of the 31 mandates from legislation enacted in 1992 and 1996, 25 mandates have been implemented, 17 of which were implemented since our March 2000 report. OPS has also made considerable progress in meeting the 23 mandates enacted in the Pipeline Safety Improvement Act of 2002 Act (2002 Act). The most noteworthy of those mandates required integrity management programs[5] (IMP) for operators of hazardous liquid and natural gas transmission pipelines. The operators use the IMPs to assess their pipelines for risk of a leak or failure, take action to mitigate the risks, and develop program performance measures. Nevertheless, six mandates from legislation enacted in 1992 and 1996 remain open.
- ***Closing out nearly all the long-overdue NTSB safety recommendations.*** OPS has closed out 21 of 23 safety recommendations we identified in our March 2000 report. Also, since that report, OPS has received 13 new NTSB recommendations, of which 8 have been closed. NTSB removed pipeline safety from its most-wanted list of safety improvements. OPS has taken the required actions on two additional recommendations and is waiting for NTSB to close them out. OPS is continuing its efforts to close out the remaining five NTSB recommendations for which acceptable actions have not been completed.

OPS has issued important rules for improving pipeline safety in the past 2 years. The most important ones were those requiring IMPs for hazardous liquids and natural gas transmission pipelines. This is a key issue as the IMP is the backbone of OPS's risk-based approach to overseeing pipeline safety.

It is against this backdrop that I would like to discuss five major points regarding pipeline safety: (1) mapping the pipeline system; (2) monitoring the evolving nature of IMP implementation; (3) monitoring operators' corrective actions for remediating pipeline integrity threats; (4) closing the safety gap on natural gas distribution pipelines; and (5) developing an approach to overseeing pipeline security.

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[5] The Integrity Management Program is a documented set of policies, processes, and procedures that includes, at a minimum, the following elements: (1) a process for determining which pipeline segments could affect a high-consequence area, (2) a baseline assessment plan, (3) a process for continual integrity assessment and evaluation, (4) an analytical process that integrates all available information about pipeline integrity and the consequences of a failure, (5) repair criteria to address issues identified by the integrity assessment and data analysis, (6) features identified through internal inspection, (7) a process to identify and evaluate preventive and mitigative measures to protect high-consequence areas, (8) methods to measure the integrity management program's effectiveness, and (9) a process for review of integrity assessment results and data analysis by a qualified individual.

- **Mapping the Pipeline System** - The first step to an effective oversight program is to identify where the assets to be overseen are located. In the past year, OPS completed the development of its national pipeline mapping system (NPMS), an initiative the pipeline industry was reluctant to support, so Congress mandated it in the 2002 Act. The NPMS is now fully operational and has mapped 100 percent of the hazardous liquid (approximately 160,000 miles of pipeline) and natural gas transmission (more than 326,000 miles) pipeline systems operating in the United States. Congress exempted natural gas distribution pipelines from the mapping mandate, so currently OPS does not have mapping data on the approximately 1.8 million miles of this type of pipeline.
- **Monitoring the Evolving Nature of IMP Implementation** - The next step is threefold: (1) operators assessing their pipelines for any potential integrity threat and correcting any threats that are identified, (2) OPS assessing whether the implementation of the operators' IMPs were adequate, and (3) OPS continuing to support research and development projects to improve pipeline inspection technology.
  - As mandated by Congress, OPS issued regulations requiring pipeline operators of hazardous liquid and natural gas transmission pipelines to develop and implement IMPs. IMPs are in the early stages of implementation, and operators are not required to have all baseline integrity inspections completed of hazardous liquid pipelines until 2009 and of natural gas transmission pipelines until 2012. OPS required hazardous liquid pipeline operators—the first segment of the industry required to implement the IMP—to first complete baseline integrity inspections of pipeline miles in high-consequence areas, such as residential communities and business districts. These pipelines present the highest risk of fatalities, injuries, and property damage should an accident occur.

    About 135,000 miles of hazardous liquid and more than 326,000 miles of natural gas transmission pipeline still need baseline integrity inspections. Nevertheless, there are early signs that the baseline integrity inspections are working well for operators of hazardous liquid pipelines, and *there was clearly a need for such inspections.* According to OPS, in the pipelines inspected so far, more than 20,000 integrity threats have been identified and remediated. A key point to remember, though, is these threats were identified in less than 16 percent (about 25,000 miles) of hazardous liquid pipeline miles requiring baseline integrity inspections.
  - OPS will be monitoring the implementation of the IMP by more than 1,100 hazardous liquid and natural gas transmission pipeline operators. This is in addition to OPS's ongoing oversight activities, such as inspecting new pipeline construction and investigating pipeline accidents. As of April 30, 2004, the 63 largest operators of hazardous liquid pipelines have

undergone initial IMP reviews by OPS inspection teams, leaving 157 hazardous liquid and 884 natural gas transmission pipeline operators still needing an initial IMP review by an OPS inspection team. Monitoring the implementation of pipeline operators' IMPs will be an ongoing process for years.

- In addition, OPS must continue to support research and development projects to improve pipeline assessment technology. The majority of operators are using smart pigs to assess pipelines under their IMPs, but smart pigs are not a silver bullet that can identify all pipeline integrity threats. Smart pigs currently in use can successfully detect and measure corrosion, dents, and wrinkles but are less reliable in detecting other types of mechanical damage. As a result, certain integrity threats still go undetected after a baseline integrity inspection, and pipeline accidents may occur. Also, the smart pig technologies currently available cannot be used in natural gas distribution pipelines because the majority of distribution piping is too small in diameter (1 to 6 inches) and has multiple bends and material types intersecting over very short distances.

- **Monitoring Operators' Corrective Actions for Remediating Pipeline Integrity Threats** - Once a threat is identified, OPS will need to follow up to ensure that the operators take timely and appropriate corrective action. Of the more than 20,000 threats that have been repaired to date, more than 1,200 required immediate repair, 760 threats required repairs within 60 days, and 2,400 threats required repairs within 180 days. More than 16,300 threats fall into the category of "other repairs," for which remediation activities are not considered time-sensitive.

  In understanding the operators' actions to remediate many of these threats, IMP inspectors need a working knowledge of the operators' pigging operations and of the interpretation of inspections' results. At the time we issued our March 2000 report, OPS did not train its inspectors on the use of smart pig technologies and the interpretation of the result of the inspections. Since that time, OPS now provides a course to IMP inspectors where they gain the knowledge and skills required to conduct meaningful safety evaluations of operator pigging program inspections and of pigging data for hazardous liquid and natural gas transmission pipelines.

  OPS's remediation criteria encompass a broad range of actions, which include mitigative measures (such as reducing the pipeline pressure flow), as well as repairs that an operator can take to resolve an integrity threat. But the process is not as simple as identifying the problem and determining how best to fix it. For some repairs, Federal and state environmental review and permitting processes have delayed preventive measures from occurring, as was demonstrated by the recent pipeline rupture in northern California. A hazardous liquid pipeline

ruptured and released about 85,000 gallons of diesel fuel, affecting 20 to 30 acres of marshland.

The deteriorating condition of this pipeline was well documented by the operator, who initiated action to relocate the pipeline in 2001. However, it took nearly 3 years and more than 40 permits before the operator was given approval to relocate the pipeline. It was too late to prevent this spill, but fortunately in this case there was no loss of human life.

An Interagency Task Force was set up to monitor and assist agencies in their efforts to expedite their review of permits. However, the Task Force has yet to implement its Memorandum of Understanding (MOU) that would expedite the environmental review and permitting processes so that pipeline repairs can be made before a serious consequence occurs. If there are any further delays in implementing the MOU, then it may be necessary for Congress to take action.

- **Closing the Safety Gap on Natural Gas Distribution Pipelines** - The natural gas distribution system makes up over 85 percent (1.8 million miles) of the 2.1 million miles of natural gas pipelines in the United States. Distribution is the final step in delivering natural gas to end users such as homes and businesses. While hazardous liquid and natural gas transmission pipeline operators are moving forward with IMPs, natural gas *distribution* pipeline operators[6] are not required to have an IMP. According to industry officials, the initial reason why natural gas distribution pipelines were not required to have an IMP is that the majority of distribution pipelines cannot be inspected using smart pigs.

  The IMP is a risk-management tool designed to improve safety, environmental protection, and reliability of pipeline operations. That natural gas distribution pipelines cannot be internally inspected using smart pigs is not by itself a sufficient reason for not requiring operators of natural gas distribution pipelines to have IMPs. Other elements of the IMP can be readily applied to this segment of the industry, including but not limited to (1) a process for continual integrity assessment and evaluation, and (2) repair criteria to address issues identified by the integrity assessment and data analysis.

  Our concern is that the Department's strategic safety goal is to reduce the number of transportation-related fatalities and injuries, but natural gas distribution pipelines are not achieving this goal. Over the last 10 years, natural gas distribution pipelines have experienced over *4 times* the number of fatalities (174 fatalities) and more than *3.5 times* the number of injuries (662 injuries) than the combined totals of 43 fatalities and 178 injuries for hazardous liquid and natural gas transmission pipelines.

[6] There are some operators of natural gas transmission pipelines that are also operators of natural gas distribution pipelines. IMP requirements do not apply to their distribution pipelines.

To address this issue, the American Gas Foundation, with OPS support, is sponsoring a study to assess the Nation's gas distribution infrastructure that will evaluate safety performance, current operating and regulatory practices, and emerging technologies.

- **Developing an Approach To Overseeing Pipeline Security** - It is not only important that we ensure the safety of the Nation's pipeline system, we must also ensure the security of the system. OPS took the lead to help reduce the risk of terrorist activity against the Nation's pipeline infrastructure following the events of September 11, 2001, but OPS now states it plays a secondary or support role to the Department of Homeland Security's (DHS) Transportation Security Administration (TSA).

  The current Presidential Directive[7] that addresses this issue is at too high a level of generality to provide clear guidance on each Agency's [DOT, DHS, and the Department of Energy (DOE)] responsibility in regards to pipeline security. The delineation of roles and responsibilities between DOT, DHS, and DOE needs to be spelled out in an MOU at the operational level so that we can better monitor the security of the Nation's pipelines without impeding the supply of energy.

Mapping the Pipeline System

To provide effective oversight of the Nation's pipeline system, OPS must first know where the pipelines are located, the size and material type of the pipe, and the types of products being delivered. The Nation's pipeline system is an elaborate network of over 2 million miles of pipe moving millions of gallons of hazardous liquids and more than 55 billion cubic feet of natural gas daily. The pipeline system is composed of predominantly three segments—natural gas transmission pipelines, natural gas distribution pipelines, and hazardous liquid transmission pipelines—run by about 2,200 natural gas distribution and transmission pipeline operators and 220 operators of hazardous liquid pipelines (as seen in Table 1). Of the 2,200 operators of natural gas pipelines, there are approximately 1,300 operators of natural gas distribution pipelines and 880 operators of natural gas transmission pipelines. There are approximately 90 Federal and 400 state inspectors responsible for overseeing the operators' compliance with pipeline safety regulations.

[7] Homeland Security Presidential Directive/HSPD-7, "Critical Infrastructure Identification, Prioritization, and Protection," issued December 2003.

Table 1. Pipeline System Facts and Description

System Segment	Facts	Segment Description
Natural Gas Transmission Pipelines	326,595 Miles	Lines used to gather and transmit natural gas from wellhead to distribution systems
Natural Gas Distribution Pipelines	1.8 Million Miles	Mostly local distribution lines transporting natural gas from transmission lines to residential, commercial, and industrial customers
Hazardous Liquid Transmission Pipelines	160,000 Miles	Lines primarily transporting products such as crude oil, diesel fuel, gasoline, and jet fuel
System Operators	**Facts**	**Operators Description**
Natural Gas Transmission Operators	880	Large, medium, and small operators of natural gas transmission pipelines
Natural Gas Distribution Operators	1,300	Large, medium, and small operators of natural gas distribution pipelines
Hazardous Liquid Operators	220	Approximately 70 large operators and 150 small operators

Originally, industry was reluctant to map the Nation's pipeline system, so Congress responded by requiring, in the 2002 Act, the mapping of hazardous liquid and natural gas transmission pipelines. In the past year, OPS completed the development of the national pipeline mapping system (NPMS). The NPMS is now fully operational and has mapped 100 percent of the hazardous liquid (approximately 160,000 miles of pipeline) and natural gas transmission (more than 326,000 miles) pipeline systems operating in the United States. Congress excepted natural gas distribution pipelines from the mapping mandate, so OPS does not have mapping data on these pipelines.

As a result of OPS and industry's mapping efforts, Government agencies and industry have access to reasonably accurate pipeline data for hazardous liquid and natural gas transmission pipelines in the event of emergency or potentially

hazardous situation. The public also has access to contact information about pipeline operators within specified geographic areas.

Monitoring the Evolving Nature of IMP Implementation

Hazardous liquid and natural gas transmission pipeline operators are in the early stages of implementing their IMPs. Safety baseline integrity inspections are just now being established systemwide—starting with hazardous liquid pipelines—so there are no comparable benchmarks. Nevertheless, as they begin implementing their IMPs, there is not yet enough evidence available to evaluate the IMP's effectiveness in strengthening pipeline safety. However, there are early signs that the baseline integrity inspections are working well for operators of hazardous liquid pipelines, and there was *clearly a need for such inspections.*

OPS is also in the early stages of overseeing the implementation of the operators' IMPs, starting with IMP assessments of operators of hazardous liquid pipelines. In doing so, OPS is challenged with monitoring the implementation of the IMPs of more than 1,100 hazardous liquid and natural gas transmission pipeline operators and assisting in the development of technologies to meet the requirements of the IMP for all sizes and shapes of pipelines and different threat detections.

Early Stages of Implementing Pipeline Operators' IMPs

The operators' implementation of their IMPs is a lengthy process. Even though the IMP rules have been issued in their final form, they will not be fully implemented for up to 8 years. For example, as part of the rules requiring IMPs for operators of natural gas transmission pipelines, operators are required to begin baseline integrity inspections no later than June 17, 2004, with inspections completed no later than December 17, 2012.

As operators begin implementing their IMPs, there are early signs that the baseline integrity inspections are working well for operators of hazardous liquid pipelines and that there was clearly a need for such inspections. So far, according to OPS,

results from the operators' baseline integrity inspections in predominantly high-consequence areas show that more than 20,000 integrity threats were identified and remediated. These threats may not have been discovered during the operators' routine inspections. One of the most serious threats discovered was a case of corrosion where greater than 80 percent of the pipeline wall thickness had been lost. It has since been repaired. A lesser threat discovered was minor corrosion along a longitudinal seam.

A key point to remember about the early baseline integrity inspection results for operators of hazardous liquid pipelines is that these 20,000 threats were discovered and remediated in less than 16 percent (about 25,000 miles) of pipeline miles needing inspection. About 135,000 miles of hazard liquid pipeline still needs baseline integrity inspections.

Although 20,000 threats were discovered in the first 25,000 miles, we cannot statistically project the number of threats that could be expected in the remaining 135,000 miles that still need baseline integrity inspections. We also cannot project the number of threats that could be expected in the more than 326,000 miles of natural gas transmission pipelines that have yet to receive baseline integrity inspections. Also, baseline integrity inspections will not be completed for several years and certain threats may be very time-sensitive, especially those to do with severe internal corrosion.

OPS required hazardous liquid pipeline operators—the first segment of the industry required to implement the IMP—to first complete baseline integrity inspections of pipeline miles in high-consequence areas, as these areas are populated, unusually sensitive to environmental damage, or commercially navigable waterways. These pipelines present the highest risk of fatalities, injuries, and property damage should an accident occur.

According to the American Petroleum Institute, nationwide there are approximately 160,000 miles of hazardous liquid pipelines, of which 51,400 miles are located in high-consequence areas. As required by the IMP rule, 25,700 of the 51,400 miles (50 percent) should receive baseline inspections by September 30, 2004. OPS estimates, of the nearly 327,000 miles of natural gas transmission pipelines, 24,970 miles are located in high consequence areas. But pipelines in high-consequence areas represent only about 16 percent of the total miles (76,370 of 487,000 total miles) for both hazardous liquid and natural gas transmission pipelines[8] and accidents that occur in non-high-consequence areas can have catastrophic consequences, such as the deadly pipeline rupture, explosion, and fire near Carlsbad, New Mexico.

On August 19, 2000, a 30-inch-diameter natural gas transmission pipeline ruptured adjacent to the Pecos River near Carlsbad. The released gas ignited and burned for 55 minutes. Twelve members of a family who were camping under a concrete-decked steel bridge that supported the pipeline across the river were killed and their three vehicles destroyed. Two nearby steel suspension bridges for gas pipelines crossing the river were extensively damaged.

During the investigation, NTSB investigators found the rupture was a result of severe internal corrosion that caused a reduction in pipe wall thickness to the point that the remaining metal could no longer contain the pressure within the pipe. The significance of this finding cannot be overstated, as corrosion is the second leading cause of pipeline accidents, and pipeline operators will need to forge ahead on their baseline integrity inspections.

Monitoring the Implementation of Pipeline Operators' IMPs

OPS must now begin assessing whether the implementation of more than 1,100 hazardous liquid and natural gas transmission pipeline operators' IMPs were

[8] The percentage of total miles in high consequence areas for hazardous liquid and natural gas transmission pipelines are early estimates and may change with the beginning of the pipeline operators' baseline integrity inspections.

adequate. OPS must also perform ongoing oversight activities, such as inspecting new pipeline construction, monitoring research and development projects, and investigating pipeline accidents. To do so, OPS believes it will need to augment its own resources with those of the states to efficiently and effectively oversee the operators' IMPs.

OPS is actively overseeing IMP implementation through its assessments of hazardous liquid pipeline operators' IMP plans. As of April 30, 2004, the 63 largest operators of hazardous liquid pipelines have undergone the initial IMP assessments. That leaves 157 more operators of hazardous liquid pipelines and 884 operators of natural gas transmission pipelines who will need initial IMP assessments.

Monitoring the implementation of pipeline operators' IMPs will be an ongoing process. OPS IMP inspection teams, made up of Federal and state inspectors, spent approximately 2 weeks at each operator's headquarters reviewing results of integrity inspection and actions taken to address integrity threats, as well as overall IMP development and effectiveness. With about 1,041 pipeline operators who have not yet had an initial IMP assessment (at 2 weeks for each assessment), compounded by the fact that pipelines operators have up to 8 years to complete their baseline integrity inspections, the *overall* effectiveness of operators' IMPs in strengthening pipeline safety will not be known for years.

Advancing Threat Detection Technologies Is Fundamental to the Success of Integrity Inspections

As part of OPS's IMP rule, operators of hazardous liquid and natural gas transmission pipelines are required to inspect the integrity of their pipelines using smart pigs or an alternate equally effective method such as direct assessment. To date, OPS's integrity management assessments indicate that operators of hazardous liquids pipelines used smart pigs about 70 percent of the time to conduct their baseline integrity inspections and strongly favored the use of smart pigs over alternative inspection methods available under the IMP. Although there have been

significant advances in smart pig technology, the current technology still cannot identify all pipeline integrity threats. Smart pigs currently in use can successfully detect and measure corrosion, dents, and wrinkles but are less reliable in detecting other types of mechanical damage. As a result, certain integrity threats go undetected and pipeline accidents may occur.

For example, on July 30, 2003, an 8-inch diameter hazardous liquid pipeline ruptured near a residential area under development in Tucson, Arizona, releasing more than 10,000 gallons of gasoline and shutting down the supply of gasoline to the greater metropolitan Phoenix area for 2 days. Whether this rupture could have been prevented is still not known because the cause of the rupture, stress crack corrosion,[9] rarely causes failure in hazardous liquid pipelines. Also, currently there are no tools or mechanisms small enough to fit in 8-inch diameter piping in order to identify the threat of stress crack corrosion.

OPS's research and development (R&D) program is aimed at enhancing the safety and reducing the potential environmental effects of transporting natural gas and hazardous liquids through pipelines. Specifically, the program seeks to advance the most promising technological solutions to problems that imperil pipeline safety, such as damage to pipelines from excavation or corrosion. OPS sponsors R&D projects that focus on providing near-term solutions that will increase the safety, cleanliness, and reliability of the Nation's pipeline system.

OPS's R&D funding has more than tripled, from $2.7 million in FY 2001 to $8.7 million in FY 2003. Nearly $4 million of the $8.7 million is funding projects to improve the technologies used to inspect the integrity of pipeline systems in support of the IMP. OPS currently has 22 active projects that explore a variety of ways to improve smart pig technologies, develop alternative inspection and

[9] Stress crack corrosion (SCC), also known as environmentally assisted cracking, is a relatively new phenomenon. Instead of pits, SCC manifests itself as cracks that are minute in length and depth. Over time, individual cracks coalesce with other cracks and become longer.

detection technologies for pipelines that cannot accommodate smart pigs, and improve pipeline material performance. For example, OPS has a project underway that will improve the capabilities of smart pigs to better detect and measure both corrosion and mechanical damage. The expected project outcome is a smart pig that is simpler to build and use.

The R&D challenge OPS now faces is seeing these projects through to completion, without undue delay and expense, to ensure that viable, reliable, cost-effective technologies become readily available to meet the demands of increased usage required under the IMP.

Monitoring Remediation of Pipeline Integrity Threats

Much of the Nation's existing pipeline infrastructure is over 50 years old. When pipeline integrity threats are identified, repairs may require Federal and state environmental reviews and permitting before the operator can proceed. However, OPS regulations identify repair criteria for the types of threats that must be repaired within specified time limits. At times, the environmental review and permitting processes become an obstacle that can delay the operators' remediation efforts.

When it passed the Pipeline Safety Improvement Act of 2002, Congress recognized that timely repair of pipeline integrity threats was essential to the well-being of human health, public safety, and the environment. Therefore, Congress directed the President to establish an interagency committee to develop and ensure the implementation of a coordinated environmental review and permitting process. This process should allow pipeline operators to commence and complete all activities necessary to carry out pipeline repairs within any time periods specified under OPS's regulations.

Certain Pipeline Repairs Must Be Completed Within Specified Time Limits

OPS regulations identify remediation criteria for the types of threats that must be repaired within specified time limits, the length of which reflects the probability of failure. For hazardous liquid pipelines, the three categories of repair are defined as immediate repair, 60 days to repair, and 180 days to repair. For example, a top dent with any indication of metal loss requires *immediate* response and action, whereas a bottom dent with any indication of metal loss requires a response and action *within 60 days*. Other types of threats include remediation activities that are not considered time-sensitive. Using the criteria, pipeline operators must characterize the type of repair required, evaluate the risk of failure, and make the repair within the defined time limit.

Of the more than 20,000 threats that have been identified and remediated to date, more than 1,200 required immediate repair, 760 required repairs within 60 days, and 2,400 required repairs within 180 days. More than 16,300 threats fall into the category of other remediation activities that are not considered time-sensitive. OPS's remediation criteria encompass a broad range of actions, which include mitigative measures (such as reducing the pipeline pressure flow), as well as repairs that an operator can make to resolve an integrity threat. For immediate repairs, an operator must temporarily reduce operating pressure or shut down the pipeline until the operator completes the repair of the threat.

The challenges inspectors face during a review of an operator's baseline integrity inspection results are to determine whether OPS's repair criteria were properly used to characterize the type of repair required for each threat identified and whether the operator's threat remediation plans are adequate to repair or mitigate the threat. More importantly, however, is that OPS will need to follow up to ensure that the operator has properly executed its remediation actions within the defined time limit.

Improvements Are Needed in Coordinating Federal and State Environmental Reviews and Permitting Processes

The transmission of energy through the Nation's pipeline system in a safe and environmentally sound manner is essential to the well-being of human health, public safety, and the environment. One way to do this is to develop and ensure implementation of a coordinated Federal and state environmental review and permitting process that will enable pipeline operators to complete pipeline repairs quickly. There will be mounting pressures to accelerate the environmental review and permitting processes, given the high number of threats found during the early stages of pipeline operators' baseline integrity inspections that must be repaired within specified time limits.

The recent pipeline rupture in northern California demonstrates the perils of not being able to promptly repair pipeline threats. In April 2004, a hazardous liquid pipeline ruptured in the Suisun Marsh south of Sacramento, California, releasing about 85,000 gallons of diesel fuel into 20 to 30 acres of marshland. Muskrats, beaver, and water fowl were affected by the spill. Fortunately, there were no human fatalities or injuries as a result of the rupture.

The deteriorating condition of the pipeline that ruptured was well documented by the pipeline operator, who had reduced pipeline operating pressure to lessen the risk of a rupture and keep the flow of energy to users in Sacramento and Chico, California, and Reno, Nevada. The pipeline operator wanted to relocate the pipeline away from the Suisun Marsh and initiated actions to do so in 2001. However, the environmental review and permitting processes took far too long: nearly 3 years and more than 40 permits in total. There is little doubt that the rupture would not have occurred had the permit process been quicker.

The importance of accelerating the permit process, when necessary, cannot be overstated. As we have noted, results from the hazardous liquid pipeline operators' baseline integrity inspections in high-consequence areas show that more than

20,000 integrity threats were identified for remediation. More than 1,200 threats required immediate repairs, 760 threats required repairs within 60 days, and 2,400 threats required repairs within 180 days. As operators continue with their baseline integrity inspections, the implications are that the number of integrity threats will continue to rise. According to OPS, repairs for other known pipeline threats are being delayed because of the environmental review and permitting processes, and they are best taken care of sooner rather than later, so as to prevent another incident like the Suisun March rupture.

When it passed the 2002 Act, Congress recognized the need to expedite the environmental review and permitting process. Section 16 of the 2002 Act directed the President to establish an interagency committee that would implement a coordinated environmental review and permitting process so that pipeline repairs could be made within the time periods specified by IMP regulations.

Committee activities were to include:

- An evaluation of Federal permitting requirements.
- Identification of best management practices to be used by industry.
- The development of an MOU by December 17, 2003, (1 year after the enactment of the 2002 Act) to provide for a coordinated and expedited pipeline permit process that would result in no more than minimal adverse effects on the environment.

The 2002 Act also requires the committee to consult with state and local environmental, pipeline safety, and emergency response officials, and requires the Secretary of Transportation to designate on ombudsman to assist in expediting the pipeline process and resolving disagreements over pipeline repairs between Federal, state, and local permitting agencies and the pipeline operator.

To implement Section 16, the President issued an Executive Order in May 2003, establishing the Interagency Task Force and directed it to implement the committee activities. The Chairman of the Council on Environmental Quality chairs the Interagency Task Force, whose membership includes representatives from the Departments of Agriculture, Commerce, Defense, Energy, the Interior, and Transportation; the Environmental Protection Agency; the Federal Regulatory Commission; and the Advisory Council on Historic Preservation.

Although an MOU has been drafted, it has not been finalized as of June 11, 2004. According to OPS, not all members of the Interagency Task Force have agreed to the provisions of the MOU, while other members believe that there are provisions in the Clean Air Act, Clean Water Act, the Endangered Species Act that prohibit them from taking any action to expedite the permitting process. Until the MOU is finalized, an evaluation of Federal permitting requirements and identification of best management practices to be used by industry will be further delayed.

These issues need to be resolved by the Interagency Task Force. While the problem may not be easily resolved, Federal agencies must work together to accelerate the environmental review and permitting process to avoid failures like the Suisun Marsh rupture or even worse. If the Interagency Task Force set up to monitor and assist agencies in their efforts to expedite their review of permits cannot develop a method for expediting the environmental review and permit process so that pipeline repairs can be made before a serious consequence occurs, then it may be necessary for Congress to take action.

Closing the Safety Gap on Natural Gas Distribution Pipelines

The 2002 Act requires that the operators of natural gas pipeline facilities implement IMPs. However, the IMP requirement applies only to natural gas transmission pipelines and not to natural gas distribution pipelines.

As part of the IMP, operators of hazardous liquid and natural gas transmission pipelines are required to inspect the integrity of their pipelines using one or more of the following inspection methods: smart pigs, pressure testing, or direct assessment.[10] According to officials of the American Gas Association, the initial reason why IMPs were not required for natural gas distribution pipelines is that distribution pipelines cannot be inspected using smart pigs. The smart pig technologies currently available cannot be used in natural gas distribution pipelines because the majority of distribution piping is too small in diameter (1 to 6 inches) and has multiple bends and material types intersecting over very short distances.

The IMP is a risk-management tool designed to improve safety, environmental protection, and reliability of pipeline operations. That natural gas distribution pipelines cannot be internally inspected using smart pigs is not by itself a sufficient reason for not requiring operators of natural gas distribution pipelines to have IMPs. Other elements of the IMP can be readily applied to this segment of the industry, including but not limited to (1) a process for continual integrity assessment and evaluation, (2) an analytical process that integrates all available information about pipeline integrity and the consequences of failure, and (3) repair criteria to address issues identified by the integrity assessment and data analysis.

Natural Gas Distribution Pipeline Safety Concerns

Our concern is that the Department's strategic safety goal is to reduce the number of transportation-related fatalities and injuries, but natural gas distribution pipelines are not achieving this goal. In the 10-year period from 1994 through 2003, OPS's data show accidents in natural gas distribution pipelines have caused more than *4 times* the number of fatalities (174 fatalities) and more than *3.5 times* the number of injuries (662 injuries) when compared to a combined total of 43 fatalities and

[10] Operators can choose another technology that demonstrates an equivalent understanding of the integrity of the pipeline but only after notifying OPS before the inspection begins.

178 injuries associated with hazardous liquid and gas transmission pipeline accidents combined.

Accidents involving natural gas distribution pipelines can be as catastrophic as accidents involving hazardous liquids or natural gas transmission pipelines. For example, on December 11, 1998, in downtown St. Cloud, Minnesota, a communications crew ruptured an underground natural gas distribution pipeline, causing an explosion that killed 4 people, seriously injured 1, and injured 10 others. Six buildings were destroyed. In another example, in July 2002, a gas explosion in a multiple-family dwelling in Hopkinton, Massachusetts, killed 2 children and injured 14 others.

In the past 3 years, the number of fatalities and injuries from accidents involving natural gas distribution pipelines has increased while the number of fatalities and injuries from accidents involving hazardous liquid and natural gas transmission pipelines has held steady or declined. OPS's data show that fatalities and injuries from accidents involving natural gas distribution pipelines increased from 5 fatalities and 46 injuries in 2001 to 11 fatalities and 58 injuries in 2003. For the same period, fatalities and injuries from accidents involving hazardous liquid and natural gas transmission pipelines decreased from 2 fatalities and 15 injuries in 2001 to 1 fatality and 13 injuries in 2003.

Although OPS has moved forward with initiatives[11] to enhance the safety of natural gas distribution pipelines, OPS needs to ensure that the pace of its efforts moves quickly enough, given the upward trend in fatalities and injuries involving these pipelines and the projected increase in distribution pipelines to meet the increasing demand for natural gas.

[11] With OPS support, the American Gas Foundation is sponsoring a study to assess the Nation's gas distribution infrastructure that will evaluate safety performance, current operating and regulatory practices, and emerging technologies.

OPS should require operators of natural gas distribution pipelines to implement some form of pipeline integrity management or enhanced safety program with the same or similar integrity management elements, except pigging, as the hazardous liquid and natural gas transmission pipelines. This would be consistent with OPS's risk-based approach to overseeing pipeline safety by using IMPs to reduce the risk of accidents that may cause injuries or fatalities to people living or working near natural gas distribution pipelines, as well as to reduce property damage.

Developing an Approach To Overseeing Pipeline Security

The focus of our recently completed review was pipeline safety. However, given the importance of protecting the Nation's infrastructure of pipeline systems, we also reviewed OPS's involvement in the security of the pipeline systems.

OPS's Security Efforts Following September 11, 2001

Following the events of September 11, 2001, OPS moved forward on several fronts to help reduce the risk of terrorist activity against the Nation's pipeline infrastructure, such as opening the lines of communication among Federal and state agencies responsible for protecting the Nation's critical infrastructure, including pipelines; conducting pipeline vulnerability assessments and identifying critical pipeline systems; developing security standards and guidance for security programs; and working with Government and industry to help ensure rapid response and recovery of the pipeline system in the event of a terrorist attack.

To protect the Nation's pipeline infrastructure, OPS issued new security guidance to pipeline operators nationwide in September 2002. In the guidance, OPS requested that all operators develop security plans to prevent unauthorized access to pipelines and identify critical facilities that are vulnerable to a terrorist attack. OPS also asked operators to submit a certification letter stating that the security plan had been implemented and that critical facilities had been identified. During 2003, OPS in

conjunction with the DHS's TSA started reviewing operator security plans. The plans reviewed have been judged responsive to the OPS guidance.

Unlike its pipeline safety program, OPS's security guidance is not mandatory: industry's participation in a security program is strictly voluntary and cannot be enforced unless a regulation is issued to require industry compliance. In fact, it is still unclear what agency or agencies will have responsibility for pipeline security rulemaking, oversight, and enforcement. Although OPS took the lead to help reduce the risk of terrorist activity against the Nation's pipeline infrastructure following the events of September 11, 2001, OPS has stated it now plays a secondary, or support, role to TSA, the agency with primary responsibility for ensuring the security of the Nation's transportation system, including pipelines.

Recent Initiatives Clarifying Security Responsibilities

Certain steps have been taken to establish what agency or agencies would be responsible for ensuring the security of the Nation's critical infrastructure, including pipelines. For example, in December 2003, Homeland Security Presidential Directive/HSPD-7 (HSPD-7):

- Assigned the DHS the responsibility for coordinating the overall national effort to enhance the protection of the Nation's critical infrastructure and key resources.

- Assigned DOE the responsibility for ensuring the security of the Nation's energy, including the production, refining, storage, and distribution of oil and gas.

- Directed DOT and DHS to collaborate on all matters relating to transportation security and transportation infrastructure protection and to regulating the transportation of hazardous materials by all modes, including pipelines.

Although HSPD-7 directs DOT and DHS to collaborate in regulating the transportation of hazardous materials by all modes, including pipelines, it is not clear from an operational perspective what "to collaborate" encompasses, and it is also not clear what OPS's relationship will be with DOE. The delineation of roles and responsibilities between DOT and DHS needs to spelled out by executing an MOU or a Memorandum of Agreement. OPS also needs to seek clarification on the delineation of roles and responsibilities between itself and DOE.

Mr. Chairman, this concludes my statement. I will be pleased to answer any questions that you might have.

Office of Inspector General

Audit Report

ACTIONS TAKEN AND NEEDED FOR IMPROVING PIPELINE SAFETY

Research and Special Programs Administration

Report Number: SC-2004-064

Date Issued: June 14, 2004

Memorandum

U.S. Department of Transportation
Office of the Secretary of Transportation
Office of Inspector General

Subject: ACTION: Audit Report on Actions Taken and Needed for Pipeline Safety
Research and Special Programs Administration
SC-2004-064

Date: June 14, 2004

From: Alexis M. Stefani
Principal Assistant Inspector General for Auditing and Evaluation

Reply to Attn. of: JA-60

To: Deputy Administrator
Research and Special Programs Administration

This report presents the results of our review of the Research and Special Programs Administration (RSPA) Office of Pipeline Safety's (OPS) progress in implementing the recommendations in the Office of Inspector General's March 2000 report,[1] which were later mandated in the Pipeline Safety Improvement Act of 2002. That Act requires the Inspector General to report periodically to Congress on OPS's progress in implementing the recommendations and to identify options for OPS to consider in expediting implementation of the recommendations. The full report follows this memorandum.

Our objective was to assess OPS's progress in implementing the Office of Inspector General recommendations for improving pipeline safety to determine whether actions taken were sufficient to correct the weaknesses found in OPS's pipeline safety program. Specifically, we assessed whether OPS has (1) fulfilled pipeline safety mandates from legislation enacted in 1992 and 1996, (2) expanded research and development to improve technologies used in pipeline inspections, (3) provided specialized training to pipeline inspectors on technologies used in and reports generated from pipeline inspections, (4) corrected shortcomings in pipeline data collection and analysis, and (5) established timetables to implement open National Transportation Safety Board (NTSB) pipeline safety recommendations. Given the importance of protecting the Nation's infrastructure of pipeline systems, we also reviewed OPS's involvement in the security of pipeline systems.

[1] OIG Report Number RT-2000-069, "Pipeline Safety Program," March 13, 2000.

A draft of this report was provided to RSPA on May 4, 2004. In its comments, RSPA agreed in general with our recommendations and stated that work is underway to address all outstanding issues identified in the draft report. For six of seven recommendations, we consider RSPA comments to be positive and constructive, and RSPA actions taken and planned for the recommendations are reasonable. Specifically, RSPA agreed to ensure that OPS:

- Completes its actions on the remaining six mandates from legislation enacted in 1992 and 1996 by December 2004.
- Completes its internet-based system for monitoring its research and development projects' costs, schedules, and performance by October 2004.
- Finalizes and implements "best practices" for its internal review process, including procedures to review data quality and to ensure that the operators are providing current, complete, and accurate accident information by March 2005.
- Completes its actions to close out the remaining five NTSB recommendations identified in this report by December 2005.
- Uses both the Department of Transportation (DOT) and RSPA policies and procedures for addressing NTSB recommendations. According to OPS, it is currently doing so.
- Clarifies its security roles and responsibilities with the Department of Energy by November 2004.

However, for one recommendation RSPA comments were not fully responsive, and we are requesting some additional information.

We recommended that RSPA ensure that OPS require operators of natural gas distribution pipelines to implement some form of pipeline integrity management or enhanced safety program with the same or similar integrity management elements as the hazardous liquid and natural gas transmission pipelines. In its response, RSPA stated that industry, state, and Federal regulators are now working to develop natural gas distribution integrity management programs (IMPs), and that a public workshop to discuss IMP concepts is planned for December 2004.

Other than indicating that it is working with the states and industry to develop an IMP for natural gas distribution pipelines and plans to hold a public workshop to discuss IMP concepts in December 2004, RSPA did not indicate when they expect to require an IMP for natural gas distribution pipelines. We are requesting RSPA to clarify this within the next 30 days.

We are withdrawing our recommendation that RSPA ensure that OPS petition the DOT, through RSPA, to execute a Memorandum of Agreement or Memorandum of Understanding (MOU) with Department of Homeland Security (DHS), formalizing the security roles and responsibilities of OPS and DHS's Transportation Security Administration. Since we made this recommendation, DOT's Deputy Secretary has made it clear that an MOU is needed, and we understand that the Deputy Secretary has communicated this to DHS. Hopefully an MOU between DOT and DHS can be consummated by September 1, 2004. DOT should keep the appropriate Congressional committees apprised of its progress in consummating an MOU with DHS.

In commenting on the findings in the draft report, there was one issue that RSPA believed needed to be clarified. In the draft report, we stated that natural gas distribution pipelines were excepted from integrity management safety mandates that govern hazardous liquid and natural gas transmission pipelines.

According to RSPA:

> The statement was misleading in that it implies that OPS has taken action to "except" gas distribution pipelines from the integrity management programs. The fact is, Federal law only mandated that transmission pipelines be assessed, so the Office of Pipeline Safety (OPS) only addressed transmission pipelines first.

We never intended to imply that OPS had excepted natural gas distribution from the IMPs and are aware that the Pipeline Safety Improvement Act of 2002 mandated IMPs only for operators of natural gas transmission pipelines. Section 14 of the 2002 Act required each operator of a gas pipeline facility[2] subject to 49 United States Code Section 60109 to adopt and implement an IMP. However, natural gas distribution pipelines are *excepted* from Section 60109 requirements. We have revised our report to clarify that operators of natural gas distribution pipelines are not required to implement IMPs.

In accordance with DOT Order 8000.1C, we request that you clarify your response and provide specific corrective action dates for the recommendation discussed above. We would appreciate receiving your written comments within 30 days. The other recommendations are considered resolved subject to the follow-up provisions of Department of Transportation Order 8000.1C.

We appreciate the courtesies and cooperation of representatives from OPS and the pipeline industry during this audit. If you have any questions concerning this

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[2] A gas pipeline facility is defined as new and existing pipeline, right-of-way, and any equipment, facility, or building used in the *transportation of gas* or in the treatment of gas during the course of transportation. Transportation of gas is defined as the "gathering, transmission, or *distribution* of gas by pipeline or the storage of gas, in or affecting interstate or foreign commerce [italics added]."

report, please call me at (202) 366-1992 or Robin K. Hunt, Deputy Assistant Inspector General for Hazardous Materials, Security and Special Programs, at (415) 744-3090.

Attachment

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cc: Associate Administrator for Pipeline Safety

Executive Summary

Actions Taken and Needed For Improving Pipeline Safety

Research and Special Programs Administration

Report No. SC-2004-064 **June 14, 2004**

OBJECTIVE

Our objective was to assess the Office of Pipeline Safety's (OPS) progress in implementing the Office of Inspector General (OIG) recommendations for improving pipeline safety to determine whether actions taken were sufficient to correct the weaknesses found in OPS's pipeline safety program. Specifically, we assessed whether OPS has (1) fulfilled pipeline safety mandates from legislation enacted in 1992 and 1996, (2) expanded research and development to improve technologies used in pipeline inspections, (3) provided specialized training to pipeline inspectors on technologies used in and reports generated from pipeline inspections, (4) corrected shortcomings in pipeline data collection and analysis, and (5) established timetables to implement open National Transportation Safety Board (NTSB) pipeline safety recommendations. Given the importance of protecting the Nation's infrastructure of pipeline systems, we also reviewed OPS's involvement in the security of pipeline systems.[3]

BACKGROUND

OPS is responsible for overseeing the safety of the Nation's pipeline system, an elaborate network of more than 2 million miles of pipe moving millions of gallons of hazardous liquids and more than 55 billion cubic feet of natural gas daily. Exhibit A contains a diagram of the natural gas pipeline system. Exhibit B contains a glossary of terms used in the pipeline industry.

The pipeline system is composed of predominantly three segments—natural gas transmission pipelines, natural gas distribution pipelines, and hazardous liquid transmission pipelines—run by about 2,200 natural gas pipeline operators[4] and

[3] We first raised our concerns about security of the Nation's pipeline systems in testimony presented before the House Subcommittee on Highways and Transit in February 2002 (OIG Number CC-2002-103, "Reauthorization of the Pipeline Safety Program," February 13, 2002).

[4] Of the 2,200 operators of natural gas distribution and transmission pipelines, there are approximately 1,300 operators of natural gas distribution pipelines and 880 operators of natural gas transmission pipelines.

220 operators of hazardous liquid pipelines. There are approximately 90 Federal and 400 state inspectors responsible for overseeing the operators' compliance with pipeline safety regulations.

Although moving commodities such as crude oil, diesel fuel, gasoline, and natural gas through pipelines is safer than moving the same commodities on other modes of transportation (e.g., barges, rail, trucks), pipeline incidents can have catastrophic consequences, such as the deadly pipeline rupture, explosion, and fire in the Bellingham, Washington, area in June 1999.

On June 10, 1999, a 16-inch-diameter pipe near Bellingham ruptured, discharging 237,000 gallons of gasoline into a nearby creek. The fuel ignited, killing three people and injuring eight others, with property damage estimated at $45 million in 2002. In the largest criminal and civil settlement ever obtained in a pipeline rupture case, two pipeline companies agreed to pay $113 million to resolve criminal and civil penalties arising from the accident and to ensure the safety of their pipelines. The charges, the first ever brought under the Hazardous Liquid Pipeline Safety Act of 1979, as amended, included three criminal counts for violating the Act, which sets minimum safety standards for training employees who operate interstate pipelines that carry hazardous liquids.

As a result of the accident, Senator Patty L. Murray requested that the OIG review OPS's role in promoting and overseeing pipeline safety. In March 2000, we reported that weaknesses existed in OPS's pipeline safety program and made recommendations designed to correct these weaknesses. These recommendations were later mandated in the Pipeline Safety Improvement Act of 2002[5] (2002 Act), which also required OIG to assess OPS's progress to:

- Fulfill the pipeline safety mandates from legislation enacted in 1992 and 1996.
- Expand the focus of OPS research and development (R&D) to improve the capabilities of technologies used to inspect the integrity of pipeline systems.
- Design and implement a program to train safety inspectors on the use of internal inspection devices (referred to as "smart pigs"[6]) and the interpretation of the results.
- Correct shortcomings in collection and analysis of pipeline accident data.

[5] Public Law 107-355, dated December 17, 2002.
[6] A "smart pig" is an instrumented internal inspection device that traverses a pipeline to detect potentially dangerous defects, such as corrosion.

- Establish timetables to implement open National Transportation Safety Board pipeline safety recommendations.

Our recommendations were issued while OPS was finalizing its Pipeline Risk Management Demonstration Program,[7] mandated by the Accountable Pipeline Safety and Partnership Act of 1996. According to OPS, this program was designed to "test whether allowing operators the flexibility to allocate safety resources through risk management is an effective way to improve safety, environmental protection, and reliability of pipeline operations." OPS concluded from the results of the Demonstration Program that there was potential for developing effective safety management processes that would protect the public and environment and provide more useful information about the integrity of the Nation's pipeline systems.

Consequently, this risk-based approach to overseeing pipeline safety evolved into what OPS has termed as "integrity management" and requires pipeline operators to develop integrity management programs (IMPs)[8] to "assess, evaluate, repair and validate through comprehensive analysis the integrity of pipeline segments that, in the event of a leak or failure, could affect populated areas, areas unusually sensitive to environmental damage and commercially navigable waterways."

RESULTS IN BRIEF

Historically, OPS was slow to implement critical pipeline safety initiatives, congressionally mandated or otherwise, and to improve its oversight of the pipeline industry. The lack of responsiveness prompted Congress to repeatedly mandate basic elements of a pipeline safety program, such as requirements to periodically inspect pipelines and to use smart pigs to inspect pipelines. In recent years, however, OPS has implemented several actions to improve pipeline safety, such as requiring IMPs for operators of hazardous liquid and natural gas transmission pipelines, which they use to assess their pipelines for risk of a leak or failure, to take action to mitigate the risks, and to develop program performance measures.

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[7] OPS's Pipeline Risk Management Demonstration Program comprised several projects nationwide that evaluated different aspects of pipeline systems' operations for ways to improve safety management and performance.

[8] The Integrity Management Program is a documented set of policies, processes, and procedures that includes, at a minimum, the following elements: (1) a process for determining which pipeline segments could affect a high-consequence area, (2) a baseline assessment plan, (3) a process for continual integrity assessment and evaluation, (4) an analytical process that integrates all available information about pipeline integrity and the consequences of a failure, (5) repair criteria to address issues identified by the integrity assessment and data analysis, (6) features identified through internal inspection, (7) a process to identify and evaluate preventive and mitigative measures to protect high-consequence areas, (8) methods to measure the program's effectiveness, and (9) a process for review of integrity assessment results and data analysis by a qualified individual.

While OPS has made progress in implementing the recommendations, the work is not done. The current situation is far from an "end state" for ensuring the safety of the Nation's pipeline system. The IMP is in the early stages of implementation, and there is clearly not enough evidence available to evaluate its effectiveness in strengthening pipeline safety. It is significant that this is the first time that baseline integrity inspections are being established systemwide—starting with hazardous liquid pipelines—so there are no comparable benchmarks.

Also, it is important to note that even though IMP rules for hazardous liquids and natural gas transmission pipelines have been issued in their final form, they will not be fully implemented nationwide for at least 8 years. For example, the operators of hazardous liquid pipelines have 7 years from the effective date of the final rule to complete baseline inspections, which will be March 2008. *This is a key issue as the IMP is the backbone of OPS's risk-based approach to overseeing pipeline safety.*

Nevertheless, as they begin implementing their IMPs, there are early signs that the baseline integrity inspections are working well for operators of hazardous liquid pipelines and that there was *clearly a need for such inspections*. So far, according to OPS, results from the operators baseline integrity inspections show that more than 20,000 integrity threats were identified for remediation.[9] This many threats—20,000—may not have been discovered during the operators' routine inspections.

While implementing the IMP goes a long way in promoting the safe, reliable, and environmentally sound operation of the Nation's pipeline system, only operators of hazardous liquid and natural gas transmission pipelines are required to implement IMPs and ***not*** operators of natural gas distribution pipelines.[10] Distribution is the final step in delivering natural gas to end users such as homes, businesses, and industries. Nearly all of the natural gas distribution pipelines are located in highly populated areas, such as business districts and residential communities, where a rupture could have the most significant consequences.

Our concern is that the Department's strategic safety goal is to reduce the number of transportation-related fatalities and injuries, but natural gas distribution pipelines are not achieving this goal. For the 10-year period from 1994 through 2003, accidents in natural gas distribution pipelines have resulted in more fatalities and injuries than hazardous liquid and natural gas transmission lines combined.

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[9] OPS's remediation criteria encompass a broad range of actions, which include mitigative measures (e.g. reducing the pipeline pressure flow) as well as repairs that an operator can take to resolve an integrity threat. For immediate repairs, an operator must temporarily reduce operating pressure or shut down the pipeline until the operator completes the repairs.

[10] Many operators of natural gas transmission pipelines are also operators of natural gas distribution pipelines. IMP requirements do not apply to their distribution pipelines.

Although OPS has moved forward with initiatives to enhance the safety of natural gas distribution pipelines, OPS needs to ensure that the pace of its efforts moves quickly enough given that there has been no steady decreasing trend in the number of accidents, fatalities, and injuries involving natural gas distribution pipelines.

OPS's progress in implementing the recommendations in our March 2000 report follows, as well as further actions that need to be taken to improve the safety and security of the Nation's pipeline system.

- ***OPS implemented most, but not all, mandates from legislation enacted in 1992 and 1996.*** Of the 31 mandates from legislation enacted in 1992 and 1996, 25 mandates have been implemented, 17 of which were implemented since our March 2000 report. In the most noteworthy example, OPS issued final rules requiring IMPs for operators of all hazardous liquid pipelines.

  OPS has also made considerable progress in meeting the 23 mandates from the 2002 Act, such as requiring IMPs for operators of natural gas transmission pipelines. This accomplishment is noteworthy because the IMP final rule for operators of natural gas transmission pipelines was issued on December 15, 2003, only 1 year after the enactment of the 2002 Act.

  Also in the past year, OPS completed the development of its national pipeline mapping system (NPMS), an initiative the pipeline industry was reluctant to support, so Congress mandated it in the 2002 Act. This is also a significant because in order to provide effective oversight of the Nation's pipeline system, OPS must first know where the pipelines are located, the size and material type of the pipe, and the types of products being delivered.

  NPMS is fully operational and has mapped 100 percent of the hazardous liquid (approximately 160,000 miles of pipeline) and natural gas transmission (more than 326,000 miles) pipeline systems operating in the United States. Congress exempted natural gas distribution pipelines from the mapping mandate, so currently OPS does not have mapping data on the approximately 1.8 million miles of this type of pipeline.

  As a result, Government agencies and industry have access to reasonably accurate pipeline data in the event of emergency or potentially hazardous situations. The public also has access to contact information about pipeline operators within their specified geographic areas.

It is important to note that even though some rules have been issued in their final form, they will not be fully implemented for many years. For example, as part of the rule requiring IMPs for operators of more than 500 miles of hazardous liquid pipelines, operators have 7 years[11] from the effective date of the final rule to complete baseline inspections. The baseline assessment period for these hazardous liquid pipeline operators will not end until March 2008.

As of December 31, 2002 (the most current available data[12]), 25 percent of pipeline miles for this segment of the industry have been baselined, using mostly smart pigs but also alternative methods approved by OPS, such as pressure testing. According to OPS, 50 percent of hazardous liquid pipeline miles[13] in high-consequence areas will be baselined by September 2004, as required by the IMP rule.

- ***Much has been accomplished in the past 3 years, but OPS needs to continue in its efforts to implement mandates from legislation enacted in 1992 and 1996.*** Two reasons for OPS's progress have been its high level of management emphasis and the priority attention given to rulemaking by the highest levels of the Department of Transportation's (DOT) management, namely the Secretary, Deputy Secretary, Chief of Staff, and General Counsel. The Secretary has taken an active interest in improving DOT's rulemaking process and has emphasized to senior DOT managers the need to ensure that rules are completed in a timely manner or that problems and issues causing delays are identified and fixed.

  Nevertheless, six mandates from legislation enacted in 1992 and 1996 remain open, and all are over 8 years past due. For example, two mandates, which are a decade overdue, would define "natural gas and hazardous liquid gathering lines"[14] so as to determine which lines can and should be regulated. OPS published a Notice of Proposed Rulemaking (NPRM) in the Federal Register on natural gas gathering lines for comment and discussion in March 1999 and published an

[11] Prior to the issuance of the final rule, there had been considerable debate on whether the initial baseline inspection period of 7 years was excessive and that a 5-year timeframe might be more desirable given the importance of the information to be developed during baseline inspections. However, because smart pigs are the preferred method for conducting pipeline assessments under the rule, reasonable estimates of growth rates for the smart pig industry would have made a 5-year timeframe difficult to achieve. A 7-year timeframe appeared more feasible.

[12] Baseline data were provided by the American Petroleum Institute through OPS and have not been verified by OPS.

[13] According to the American Petroleum Institute, nationwide there are approximately 160,000 miles of hazardous liquid pipelines, of which 51,400 miles are located in high-consequence areas. As required by the final rule, 25,700 of the 51,400 miles (50 percent) should have received baseline assessments by September 30, 2004.

[14] Gathering lines are pipelines, usually of small diameter, used in moving gas or hazardous liquid from the field to a central point.

advisory bulletin in October 2002. This mandate is still under discussion, with a supplemental notice expected in December 2004. OPS also expects to issue a NPRM on hazardous liquid gathering lines for comment in December 2004, 12 years after the mandate was enacted.

- ***Closing the safety gap on natural gas distribution pipelines.*** The mandates from legislation enacted in 1992, 1996, and 2002 go a long way in promoting safe, reliable, and environmentally sound operations of the Nation's pipeline system. However, operators of natural gas *distribution* pipelines are not required to implement the integrity management safety mandates that govern operators of hazardous liquid and natural gas *transmission* pipelines.

  For example, the Pipeline Safety Improvement Act of 2002 requires that the operators of a gas pipeline facility[15] implement IMPs. However, the IMP requirement only applies to operators of natural gas *transmission* pipelines. As part of the IMP rule, operators of natural gas transmission pipelines are required to inspect the integrity of their pipelines using one or more of the following inspection methods: smart pigs, pressure testing, or direct assessment.[16]

  According to officials of the American Gas Association, the initial reason for not requiring operators of natural gas distribution pipelines to have IMPs is that distribution pipelines cannot be inspected using smart pigs. The smart pig technologies currently available cannot be used in natural gas distribution pipelines because the majority of distribution piping is too small in diameter (1 to 6 inches) and has multiple bends and material types intersecting over very short distances.

  The IMP is a risk-management tool designed to improve safety, environmental protection, and reliability of pipeline operations. The fact that natural gas distribution pipelines cannot be internally inspected using smart pigs is not a sufficient reason for not requiring IMPs for operators of natural gas distribution pipelines. Other elements of the IMP can be readily applied to this segment of the industry, including but not limited to (1) a process for continual integrity assessment and evaluation, (2) an analytical process that integrates all available

[15] A gas pipeline facility is defined as new and existing pipeline, right-of-way, and any equipment, facility, or building used in the *transportation of gas* or in the treatment of gas during the course of transportation. Transportation of gas is defined as the "gathering, transmission, or *distribution* of gas by pipeline or the storage of gas, in or affecting interstate or foreign commerce [italics added]."

[16] Operators can choose another technology that demonstrates an equivalent understanding of the integrity of the pipeline but only after notifying OPS before the inspection begins.

information about pipeline integrity and the consequences of failure, and (3) repair criteria to address issues identified by the integrity assessment and data analysis.

Our concern is that the Department's strategic safety goal is to reduce the number of transportation-related fatalities and injuries, but natural gas distribution pipelines are not achieving this goal. In the 10-year period from 1994 through 2003, OPS's data show accidents in natural gas distribution pipelines have caused more than *4 times* the number of fatalities (174 fatilities) and more than *3.5 times* the number of injuries (662 injuries) when compared to a combined total of 43 fatalities and 178 injuries associated with hazardous liquid and gas transmission pipeline accidents.

In fact, in the past 3 years, the number of fatalities and injuries from accidents involving natural gas distribution pipelines has increased while the number of fatalities and injuries involving hazardous liquid and natural gas transmission pipelines has held steady or declined. OPS's data show that fatalities and injuries from accidents involving natural gas distribution pipelines increased from 5 fatalities and 46 injuries in 2001 to 11 fatalities and 58 injuries in 2003. For the same period, fatalities and injuries from accidents involving hazardous liquid and natural gas transmission pipelines decreased from 2 fatalities and 15 injuries in 2001 to 1 fatality and 13 injuries in 2003.

Although OPS has moved forward to enhance the safety of natural gas distribution pipelines, OPS needs to ensure that the pace of its efforts moves quickly enough given that there has been no steady decreasing trend in the number of accidents, fatalities, and injuries involving natural gas distribution pipelines. OPS should require operators of natural gas distribution pipelines to implement some form of pipeline integrity management or enhanced safety program with the same or similar integrity management elements as the hazardous liquid and natural gas transmission pipelines. This would be consistent with OPS's risk-based approach to overseeing pipeline safety by using IMPs to reduce the risk of accidents that may cause injuries or fatalities to people living or working near natural gas distribution pipelines, as well as to reduce property damage.

- ***OPS increased the funding and scope for R&D projects to improve the technologies used to inspect pipeline systems; however, project oversight improvements need to be completed.*** As part of OPS's IMP rule, operators of hazardous liquid and natural gas transmission pipelines are required to inspect the integrity of their pipelines using a

variety of methods such as smart pigs and direct assessment. To date, OPS's integrity management assessments indicate that operators of hazardous liquids pipelines used smart pigs about 70 percent of the time to conduct their baseline integrity inspections and strongly favored the use of smart pigs over alternative inspection methods available under the IMP, such as direct assessment. Although there have been significant advances in smart pig technology, the current technology still cannot identify all pipeline integrity threats. Smart pigs currently in use can successfully detect and measure corrosion, dents, and wrinkles but are less reliable in detecting other types of mechanical damage. As a result, certain integrity threats go undetected and pipeline accidents may occur.

OPS's R&D funding more than tripled, from $2.7 million in fiscal year (FY) 2001 to $8.7 million in FY 2003. Nearly $4 million of the $8.7 million is for projects to improve the technologies used to inspect the integrity of pipeline systems. R&D projects currently funded have increased in size and scope, from a single project before 2001 to 22 active projects in 2004. These projects explore a variety of ways to improve smart pig technologies, develop alternative inspection and detection technologies for pipelines that cannot accommodate smart pigs, and improve pipeline material performance.

With the increase in size and scope of R&D projects, OPS has developed and implemented an internet-based system to electronically manage pre-award activities (e.g., issuance of announcements, receipt and review of proposals). OPS is developing, as part of the same system, a component to monitor post-award activities, such as managing project costs, schedules, and performance.

OPS estimates that 10 to 15 additional R&D projects are planned to begin in late 2004. OPS needs to complete its internet-based system component for monitoring post-award activities of R&D projects to ensure that viable, reliable, cost-effective technologies become readily available to meet the requirements of the IMP and, at the same time, to ensure efficient and effective management of its R&D funds.

- ***OPS designed and implemented a program to train safety inspectors on the use of smart pig technologies and the interpretation of the result of the inspections. OPS must now be forward-looking to ensure its inspector workforce knowledge base is commensurate with increased usage of and advances in smart pig technology.*** All OPS inspectors are required to take an awareness course on internal inspection technologies as part of their 9-course basic training. At the

time we issued our March 2000 report, OPS did not train its inspectors on the use of smart pig technologies and the interpretation of the result of the inspections. Since that time, OPS IMP inspectors are required to take a more comprehensive course on internal inspection technologies as part of their advanced training. The course is designed to provide inspectors with the knowledge and skills required to conduct meaningful safety evaluations of operator pigging program inspections and of pigging data for hazardous liquid and natural gas transmission pipelines. As of May 31, 2004, 110 Federal and state inspectors have received the advanced training, with an additional 58 Federal and state inspectors scheduled to take the advanced training in 2004.

OPS will be monitoring the implementation of more than 1,100 hazardous liquid and natural gas transmission pipeline operators. This is in addition to OPS's ongoing oversight activities, such as inspecting new pipeline construction and investigating pipeline accidents. IMP inspectors are actively overseeing the IMP implementation through their assessments of hazardous liquid pipeline operators' IMP plans—the first segment of the industry required to implement the IMP.

As of April 30, 2004, results from OPS's IMP assessments disclosed, among other things, that (1) the 63 largest operators of hazardous liquid pipelines have undergone IMP assessments, which leaves 157 more operators of hazardous liquid pipelines and 884 operators of natural gas transmission pipelines who will need initial IMP assessments; (2) smart pigs were used by the pipeline operators about 70 percent of the time to conduct their baseline integrity inspections of hazardous liquid pipelines; and (3) more than 20,000 integrity threats were identified and remediated as part of the operators' IMPs. One of the most serious threats discovered was corrosion where greater than 80 percent of the pipeline wall thickness had been lost. It has since been repaired. A lesser threat discovered was minor corrosion along a longitudinal seam.

The challenges inspectors face during a review of an operator's baseline integrity inspection results are to determine whether OPS's repair criteria were properly used to characterize the type of repair required for each threat identified and whether the operator's threat remediation plans are adequate to repair or mitigate the threat. More importantly, however, is that OPS will need to follow up to ensure that the operator has properly executed remediation actions within the defined time limit.

OPS must ensure its inspector workforce knowledge base is commensurate with increased usage and technological advances of

smart pigs. As OPS has noted, hazardous liquid pipeline operators strongly favor the use of smart pigs to conduct baseline integrity inspections. Also, increased funding in smart pig R&D will improve the technology to allow more pipeline mileage to be inspected using smart pigs instead of alternative inspection methods. Current training course curricula may have to be revised to account for the increased usage of and advances in the technologies used to inspect the integrity of pipeline systems.

- ***OPS corrected shortcomings in pipeline data collection. However, "best practices" are needed in its internal review process to ensure that the accident data submitted by pipeline operators are accurate and reliable.*** In 1997, NTSB noted significant problems with pipeline accident data collection and analysis and recommended that OPS revise its reporting forms and instructions to eliminate overlapping and confusing categories and to include new, more descriptive causal categories.

  In January 2002, OPS issued new reporting forms and instructions for accidents involving natural gas transmission and hazardous liquid pipelines, increasing the number of causal categories from 4 to 25 for natural gas transmission pipelines and from 7 to 25 for hazardous liquid pipelines. In March 2004, OPS issued a new reporting form and instructions for accidents involving natural gas distribution pipelines, increasing the number of causal categories from 5 to 25. The new reporting forms and instructions also require operators to indicate if the data being provided are initial, supplemental, or final. With the added causal categories, OPS will have access to far more detailed information about the causes of pipeline accidents.

  To assess root causes of accidents, identify appropriate corrective actions, and ensure that the operator provides the most current, accurate, and complete accident information as it becomes available, OPS has begun to improve its process for internally reviewing accident information. It is developing written guidelines and conducting the first of several quarterly sessions of formal training for the personnel responsible for the internal review process. Training will be ongoing until OPS has established best practices for the internal review of operator accident information.

  As more accident data are collected, data analysis becomes an integral component in assessing and evaluating the performance of the IMP, identifying safety trends, and reporting program results (e.g., in the annual performance report to Congress required under the Government

Performance and Results Act). However, the quality of OPS's data analysis and reporting is only as good as the timeliness, completeness, and accuracy of data submitted by the operators.[17] As we have seen in other DOT programs, the quality and timeliness of the accident data is key to an effective program. We recently reported on the Federal Motor Carriers Safety Administration's (FMCSA) Motor Carrier Safety Status Measurement System (SafeStat)[18] and found that significant problems existed with the data motor carriers and the states provide to FMCSA, such as errors and omissions in the data records. These data problems limited SafeStat's effectiveness and introduced bias into the ranking process for targeting high-risk motor carriers.

To avoid future problems and to ensure that operators' data can be relied on to target its oversight resources, OPS needs to finalize and implement the best practices for its internal review process, including procedures to review data quality. As part of its data quality review, OPS should include reviews of source documentation to make sure accident data submitted to OPS by the pipeline operators are complete and accurate. OPS should also take enforcement action against those operators who are not complying with the reporting requirements.

- ***OPS made progress in closing out long overdue NTSB safety recommendations, but improvements are still needed in the internal processing of open recommendations.*** OPS has closed out 21 of 23 NTSB safety recommendations we identified in our March 2000 report. One of the remaining two open NTSB recommendations is considered by OPS as being in the close-out phase (i.e., acceptable action taken by OPS and close-out letter at NTSB for review).

  Since our March 2000 report, OPS has shown considerable progress in fully implementing NTSB recommendations. OPS has received 13 new NTSB recommendations, of which 8 have been closed, and 7 of those 8 recommendations were closed within 2 years of issuance. OPS expects the remaining five open recommendations to be closed within 4 years of issuance. This is compared to an average issuance-to-closure time of 6.4 years, with a range of 3.3 years to 17.1 years, for the 21 of 23 recommendations identified in our March 2000 report.

[17] At the time of our review, the requirement that operators use the new accident reporting forms and instructions was in the early stages of implementation, and it was too soon to tell whether the new accident reporting forms and instructions would improve the comprehensiveness and quality of data.

[18] OIG Report Number MH-2004-034, "Improvements Needed in the Motor Carrier Safety Status Measurement System," February 13, 2004.

OPS needs to continue in its efforts to close out the remaining five NTSB recommendations where acceptable actions have not been completed, especially the recommendations addressing issues that are fundamental to the integrity of the pipeline system. For example, one recommendation would require that new or replaced pipelines be designed and constructed with features to mitigate internal corrosion. The significance of this recommendation cannot be overstated, as corrosion is the second leading cause of pipeline accidents.

OPS also needs to establish a formal internal policy and procedures for responding to NTSB recommendations so that key safety recommendations are addressed completely and in a timely manner. Of the 13 new recommendations OPS received since our March 2000 report, only 3 were processed in accordance with DOT policy. This policy requires Operating Administrations to reply to NTSB recommendations within 90 days of receipt. For recommendations with which the Operating Administration concurs, the response must include an implementation timetable. The policy also requires that all actions proposed in response to NTSB recommendations will be pursued expeditiously.

Pipeline Security Roles and Responsibilities Need To Be Solidified

To its credit, OPS has moved forward on several fronts to help reduce the risk of terrorist activity against the Nation's pipeline infrastructure. For example, OPS has conducted pipeline vulnerability assessments and identified critical pipeline systems; it has also developed security standards and guidance for security programs.

However, unlike its pipeline safety program, OPS's security guidance is not mandatory. Industry's participation in a security program is strictly voluntary and cannot be enforced unless a regulation is issued to require industry compliance. In fact, it is still unclear which agency or agencies will have responsibility for pipeline security rulemaking, oversight, and enforcement.

Certain steps have been taken to establish what agency or agencies would be responsible for ensuring the security of the Nation's critical infrastructure, including pipelines. For example, in December 2003, Homeland Security Presidential Directive/HSPD-7[19] (HSPD-7):

[19] Homeland Security Presidential Directive/HSPD-7, "Critical Infrastructure Identification, Prioritization, and Protection," issued December 2003.

- Assigned the Department of Homeland Security (DHS) the responsibility for coordinating the overall national effort to enhance the protection of the Nation's critical infrastructure and key resources.

- Assigned the Department of Energy (DOE) the responsibility for ensuring the security of the Nation's energy, including the production, refining, storage, and distribution of oil and gas.

- Directed DOT and DHS to collaborate (1) on all matters relating to transportation security and transportation infrastructure protection, and (2) in regulating the transportation of hazardous materials by all modes, including pipelines.

Although HSPD-7 directs DOT and DHS to collaborate in regulating the transportation of hazardous materials by all modes, including pipelines, it is not clear from an operational perspective what "to collaborate" encompasses, and it is also not clear what OPS's relationship will be with DOE. To be more useful in the operating environment, the delineation of roles and responsibilities between DOT and DHS needs to spelled out by executing a Memorandum of Understanding (MOU) or a Memorandum of Agreement. OPS also needs to seek clarification on the delineation of roles and responsibilities between itself and DOE.

RECOMMENDATIONS

The progress described above was the direct result of a high level of management attention and priority by OPS in the past few years to implementing the recommendations and to helping reduce the risk of terrorist activity against the Nation's pipeline infrastructure. OPS needs to maintain this level of attention in the future because further actions are needed. Specifically, RSPA needs to ensure that OPS:

1. Completes its actions on the remaining six mandates from legislation enacted in 1992 and 1996.

2. Requires operators of natural gas distribution pipelines to implement some form of pipeline integrity management or enhanced safety program with the same or similar integrity management elements as the hazardous liquid and natural gas transmission pipelines.

3. Completes its internet-based system for monitoring its R&D project costs, schedules, and performance.

4. Finalizes and implements "best practices" for its internal review process, including procedures to review data quality and to ensure that the operators are providing current, complete, and accurate accident information. OPS should also take enforcement action against those operators who are not complying with the reporting requirements.

5. Completes its actions to close out the remaining five NTSB recommendations identified in this report.

6. Implements a formal internal policy and procedures for responding to NTSB recommendations so that key safety recommendations are addressed completely and in a timely manner in accordance with DOT policy.

7. Seeks clarification on the delineation of roles and responsibilities between itself and DOE.

MANAGEMENT COMMENTS AND OFFICE OF INSPECTOR GENERAL RESPONSE

A draft of this report was provided to RSPA on May 4, 2004. In its comments, RSPA agreed in general with our recommendations and stated that work is underway to address all outstanding issues identified in the draft report. For six of seven recommendations, we consider RSPA comments to be positive and constructive, and RSPA actions taken and planned for the recommendations are reasonable. Specifically, RSPA agreed to ensure that OPS:

- Completes its actions on the remaining six mandates from legislation enacted in 1992 and 1996 by December 2004.

- Completes its internet-based system for monitoring its research and development projects' costs, schedules, and performance by October 2004.

- Finalizes and implements "best practices" for its internal review process, including procedures to review data quality and to ensure that the operators are providing current, complete, and accurate accident information by March 2005.

- Completes its actions to close out the remaining five NTSB recommendations identified in this report by December 2005.

- Uses both the Department of Transportation (DOT) and RSPA's policies and procedures for addressing NTSB recommendations. According to OPS, it is currently doing so.

- Clarifies its security roles and responsibilities with DOE by November 2004.

However, for one recommendation, RSPA comments were not fully responsive, and we are requesting some additional information.

We recommended that RSPA ensure that OPS require operators of natural gas distribution pipelines to implement some form of pipeline integrity management or enhanced safety program with the same or similar integrity management elements as the hazardous liquid and natural gas transmission pipelines.

In its response, RSPA stated that industry, state, and Federal regulators are now working to develop natural gas distribution IMPs, and that a public workshop to discuss IMP concepts is planned for December 2004. Other than indicating that it is working with the states and industry to develop an IMP for natural gas distribution pipelines and plans to hold a public workshop to discuss IMP concepts in December 2004, RSPA did not indicate when it expected to require an IMP for natural gas distribution pipelines. We requested that RSPA clarify this issue.

We are withdrawing our recommendation that RSPA ensure that OPS petition the DOT, through RSPA, to execute a Memorandum of Agreement or MOU with DHS, formalizing the security roles and responsibilities of OPS and DHS's Transportation Security Administration. Since we made this recommendation, DOT's Deputy Secretary has made it clear that an MOU is needed, and we understand that the Deputy Secretary has communicated this to DHS. Hopefully an MOU between DOT and DHS can be consummated by September 1, 2004. DOT should keep the appropriate Congressional committees apprised of its progress on the MOU with DHS.

In commenting on the findings in the draft report, there was one issue that RSPA believed needed to be clarified. In the draft report, we stated that natural gas distribution pipelines were excepted from integrity management safety mandates that govern hazardous liquid and natural gas transmission pipelines. According to RSPA:

> The statement was misleading in that it implies that OPS have taken action to "except" gas distribution pipelines from the integrity management programs. The fact is, Federal law only mandated that transmission pipelines be assessed, so the Office of Pipeline Safety (OPS) only addressed transmission pipelines first.

We never intended to imply that OPS had excepted natural gas distribution from the IMPs and are aware that the Pipeline Safety Improvement Act of 2002 mandated IMPs for operators of only natural gas transmission pipelines. Section

14 of the 2002 Act required each operator of a gas pipeline facility[20] subject to 49 United States Code Section 60109 to adopt and implement an IMP. However, natural gas distribution pipelines are *excepted* from Section 60109 requirements. We have revised our report to clarify that operators of natural gas distribution pipelines are not required to implement IMPs.

[20] A gas pipeline facility is defined as new and existing pipeline, right-of-way, and any equipment, facility, or building used in the *transportation of gas* or in the treatment of gas during the course of transportation. Transportation of gas is defined as the "gathering, transmission, or *distribution* of gas by pipeline or the storage of gas, in or affecting interstate or foreign commerce [italics added]."

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INTRODUCTION

Background

The Office of Pipeline Safety (OPS) is responsible for overseeing the safety of the Nation's pipeline system, an elaborate network of more than 2 million miles of pipe moving millions of gallons of hazardous liquids and more than 55 billion cubic feet of natural gas daily. Exhibit A contains a diagram of the natural gas pipeline system. Exhibit B contains a glossary of terms used in the pipeline industry.

The pipeline system is composed of predominantly three segments—natural gas transmission pipelines, natural gas distribution pipelines, and hazardous liquid pipelines—run by about 2,200 natural gas pipeline operators and 200 operators of hazardous liquid pipelines (as seen in Table 1). There are approximately 90 Federal and 400 state inspectors responsible for overseeing the operators' compliance with pipeline safety regulations.

Table 1. Pipeline System Facts and Description

System Segment	Facts	Segment Description
Natural Gas Transmission Pipelines	326,595 Miles	Lines used to gather and transmit natural gas from wellhead to distribution systems
Natural Gas Distribution Pipelines	1.8 Million Miles	Mostly local distribution lines transporting natural gas from transmission lines to residential, commercial, and industrial customers
Hazardous Liquid Transmission Pipelines	160,000 Miles	Lines primarily transporting products such as crude oil, diesel fuel, gasoline, and jet fuel
System Operators	**Facts**	**Operators Description**
Natural Gas Transmission Operators	880	Large, medium, and small operators of natural gas transmission pipelines
Natural Gas Distribution Operators	1,300	Large, medium, and small operators of natural gas distribution pipelines
Hazardous Liquid Operators	220	Approximately 70 large operators and 130 small operators

Although moving commodities such as crude oil, diesel fuel, gasoline, and natural gas through pipelines is safer than moving the same commodities on other modes of transportation (e.g., barges, rail, trucks), pipeline incidents can have catastrophic consequences, such as the deadly pipeline rupture, explosion, and fire in the Bellingham, Washington, area in June 1999.

On June 10, 1999, a 16-inch-diameter pipe near Bellingham ruptured, discharging 237,000 gallons of gasoline into a nearby creek. The fuel ignited, killing three people and injuring eight others, with property damage estimated at $45 million in 2002. In the largest criminal and civil settlement ever obtained in a pipeline rupture case, two pipeline companies agreed to pay $113 million to resolve criminal and civil penalties arising from the accident and to ensure the safety of their pipelines. The charges, the first ever brought under the Hazardous Liquid Pipeline Safety Act of 1979, as amended, included three criminal counts for violating this act, which sets minimum safety standards for training employees who operate interstate pipelines that carry hazardous liquids.

As a result of the accident, Senator Patty L. Murray requested that the Office of Inspector General (OIG) review OPS's role in promoting and overseeing pipeline safety. In March 2000, we reported that weaknesses existed in OPS's pipeline safety program and made recommendations designed to correct these weaknesses. These recommendations were later mandated in the Pipeline Safety Improvement Act of 2002 (2002 Act), which also required OIG to assess OPS's progress to:

- Fulfill the pipeline safety mandates from legislation enacted in 1992 and 1996.
- Expand the focus of OPS research and development (R&D) to improve the capabilities of technologies used to inspect the integrity of pipeline systems.
- Design and implement a program to train safety inspectors on the use of internal inspection devices (referred to as "smart pigs"[21] and the interpretation of the results.
- Correct shortcomings in collection and analysis of pipeline accident data.
- Establish timetables to implement open National Transportation Safety Board (NTSB) pipeline safety recommendations.

[21] A "smart pig" is an instrumented internal inspection device that traverses a pipeline to detect potentially dangerous defects, such as corrosion.

Our recommendations were issued while OPS was finalizing its Pipeline Risk Management Demonstration Program,[22] mandated by the Accountable Pipeline Safety and Partnership Act of 1996. According to OPS, this program was designed to "test whether allowing operators the flexibility to allocate safety resources through risk management is an effective way to improve safety, environmental protection, and reliability of pipeline operations." OPS concluded from the results of the Demonstration Program that there was potential for developing effective safety management processes that would protect the public and environment and provide more useful information about the integrity of the Nation's pipeline systems.

Consequently, this risk-based approach to overseeing pipeline safety evolved into what OPS has termed as "integrity management" and requires pipeline operators to develop integrity management programs (IMPs)[23] to "assess, evaluate, repair and validate through comprehensive analysis the integrity of pipeline segments that, in the event of a leak or failure, could affect populated areas, areas unusually sensitive to environmental damage and commercially navigable waterways."

Objectives, Scope, and Methodology

Congress passed the Pipeline Safety Improvement Act of 2002, which mandates the Secretary of Transportation to implement the safety improvement recommendations made in the OIG's Report Number RT-2000-069, "Pipeline Safety Program," March 13, 2000. In addition, the 2002 Act requires the Inspector General to report periodically to Congress on the Secretary's progress in implementing the recommendations and to identify options for the Secretary to consider in accelerating implementation of the recommendations.

The audit objective was to assess OPS's progress in implementing the pipeline safety improvement recommendations included in our March 2000 report. Specifically, we assessed whether OPS has:

- Fulfilled the pipeline safety mandates from legislation enacted in 1992 and 1996,

[22] OPS's Pipeline Risk Management Demonstration Program comprised several projects nationwide that evaluated different aspects of pipeline systems' operations for ways to improve safety management and performance.

[23] The Integrity Management Program is a documented set of policies, processes, and procedures that includes, at a minimum, the following elements: (1) a process for determining which pipeline segments could affect a high-consequence area, (2) a baseline assessment plan, (3) a process for continual integrity assessment and evaluation, (4) an analytical process that integrates all available information about pipeline integrity and the consequences of a failure, (5) repair criteria to address issues identified by the integrity assessment and data analysis, (6) features identified through internal inspection, (7) a process to identify and evaluate preventive and mitigative measures to protect high-consequence areas, (8) methods to measure the program's effectiveness, and (9) a process for review of integrity assessment results and data analysis by a qualified individual.

- Expanded the focus of OPS research and development programs to improve the capabilities of technologies used to inspect the integrity of the pipeline system,

- Designed and implemented a program to train safety inspectors on the use of internal inspection devices and the interpretation of inspection results,

- Improved the collection and analysis of pipeline accident data,

- Established an enforcement mechanism to ensure operators' accident reports are complete and accurate, and

- Established timetables to implement open NTSB pipeline safety recommendations.

In addition, with the need to protect the Nation's infrastructure of pipelines, we reviewed OPS's involvement in the security of the pipeline system.

The audit was conducted from May 2003 to January 2004 and covered OPS actions in implementing our recommendations for the period March 2000 through April 2004. We conducted our review in accordance with Government Auditing Standards prescribed by the Comptroller General of the United States.

To determine OPS's progress in responding to congressional mandates, we asked OPS officials to identify actions OPS has taken to implement these requirements. We then gathered and analyzed available documentation, OPS reports, and published rules in the DOT Docket Management System. To determine OPS's progress in responding to recommendations from the NTSB, we asked OPS to provide a progress report. We then interviewed NTSB's Director of the Office of Railroad, Pipeline, and Hazardous Materials Investigations about OPS's progress in responding to Board recommendations. In addition, we obtained from NTSB a detailed status report for each open pipeline recommendation.

During the audit we also met with state agencies, pipeline operators, congressional staff members, and industry representatives to better understand pipeline operations and safety issues. We performed work in OPS Headquarters and the OPS Eastern Region in Washington, D.C. We also visited or contacted the OPS Southern Region in Atlanta, Georgia; Southwestern Region in Houston, Texas; and Western Region in Denver, Colorado. We visited pipeline research contractors in Columbus, Ohio, and San Antonio, Texas. We observed a Pacific Gas and Electric pipeline excavation near Hollister, California. We also met with

state pipeline regulatory officials and inspectors from Olympia, Washington, and from Los Angeles, Sacramento, and San Francisco, California.

At each location, we conducted interviews with key program officials and, where possible, observed operations or pipeline repair demonstrations. We also analyzed performance goals, budget documents, accident report forms, accident investigation reports, internal memoranda, and other documents we considered germane to our audit objectives.

Prior Audit Coverage

On February 13, 2002, we testified before the House Committee on Transportation and Infrastructure, Subcommittee on Highways and Transit on the reauthorization of the Pipeline Safety Program. While we noted that the Research and Special Programs Administration (RSPA) has made progress in responding to recommendations made by OIG in a 2000 report, we identified six issues where additional work remains: (1) fulfilling long-overdue congressional mandates on integrity management of natural gas transmission pipelines and mapping of the pipeline system, (2) expanding pipeline safety R&D to improve the capabilities of internal inspection devices, (3) completing improvements in pipeline accident data collection and analysis, (4) training pipeline inspectors to use internal inspection devices and interpret test results, (5) completing baseline inspections by 2008 for all hazardous liquid and natural gas transmission pipelines, and (6) developing action plans for security roles among agencies.

On March 13, 2000, we issued Report Number RT-2000-069, "Pipeline Safety Program." The report included six recommendations. First on the list was a recommendation to finalize the actions to implement 1992 and 1996 congressional mandates. The next two recommendations reflected OIG's concern about smart pigs. We recommended that OPS expand its R&D program to develop more sophisticated internal inspection devices and explore ways to internally inspect pipelines that cannot accept smart pigs. We also recommended that OPS train its safety inspectors to read and interpret internal pipeline inspection results.

Accident reporting was also an area of concern. We recommended OPS revise its accident report forms to expand causal categories and to clarify instructions for completing the form. This recommendation was aimed at sharpening OPS's trend analysis. To ensure the accident forms were updated as additional facts surfaced, we recommended a regulatory change to give OPS enforcement authority to compel operators to revise accident reports.

Finally, we noted that OPS did not provide NTSB with required enactment timetables for recommendations with which OPS agreed, and we recommended OPS establish these timetables and provide them to NTSB.

FINDINGS AND RECOMMENDATIONS

Since our March 2000 report, OPS has shown considerable progress in implementing congressional mandates and NTSB safety recommendations, but more needs to be done. For example, of the 31 mandates from legislation enacted in 1992 and 1996, 25 mandates have been implemented, 17 of which were implemented since our March 2000 report. Six mandates from legislation enacted in 1992 and 1996 remain open, and all are over 8 years past due.

Also, OPS has increased its research and development (R&D) funding to improve pipeline inspection methods, trained safety inspectors on the use of smart pig technologies, and corrected shortcomings in pipeline data collection and analysis, but these actions need ongoing attention and follow through to ensure continued success of the IMP and OPS's safety oversight.

The IMP is now under way for operators of hazardous liquid and natural gas transmission pipeline systems, but the IMP rules will not be fully implemented for up to 8 years. *This is a key issue as the IMP is the backbone of OPS's risk-based approach to overseeing pipeline safety.*

Because IMP is in the early stages of implementation, there is clearly not enough evidence available to evaluate its effectiveness in strengthening pipeline safety. This is the first time that baseline integrity inspections are being established systemwide—starting with hazardous liquid pipelines—so there are no comparable benchmarks. While OPS has made progress in implementing the recommendations, the work is not done. The current situation is far from an "end state" for ensuring the safety of the Nation's pipeline system.

Mandates Implemented from 1992 and 1996 Legislation

Historically, OPS has been slow to implement critical pipeline safety initiatives and to improve its oversight of the pipeline industry. The lack of responsiveness has prompted Congress to repeatedly mandate basic elements of a pipeline safety program, such as requirements to inspect pipelines periodically and to use smart pigs to inspect pipelines. In recent years, however, OPS has initiated several actions to improve pipeline safety, such as requiring IMPs for pipeline operators, which they use to assess their pipelines for risk of a leak or failure, to take action to mitigate the risks, and to develop program performance measures.

The mandates from legislation enacted in 1992, 1996, and 2002 go a long way in promoting safe, reliable, and environmentally sound operations of the Nation's pipeline system. However, natural gas *distribution* pipelines are not required to implement the integrity management safety mandates that govern hazardous liquid and natural gas *transmission* pipelines. For the 10-year period from 1994 through 2003, accidents in natural gas distribution pipelines have resulted in more fatalities and injuries than hazardous liquid and natural gas transmission pipelines combined. Although OPS has moved forward with initiatives to enhance the safety of natural gas distribution pipelines, OPS needs to ensure that the pace of its efforts moves quickly enough given that there has been no steady decreasing trend in the number of accidents, fatalities, and injuries involving natural gas distribution pipelines. OPS needs to encourage and assist operators of natural gas distribution pipelines to develop IMPs that would protect the public and environment and provide more useful information about the integrity of the Nation's pipeline systems.

FULFILLING OUTSTANDING MANDATES

OPS has aggressively moved forward in the past 3 years in implementing many of the mandates from legislation enacted in 1992 and 1996. Of the 31 mandates from legislation enacted in 1992 and 1996, 25 have been implemented, 17 of which were implemented since our March 2000 report. OPS has also made considerable progress in meeting the 23 mandates enacted in the 2002 Act. The most noteworthy of those mandates:

- Required IMPs for operators of hazardous liquid and natural gas transmission pipelines, and
- Defined environmentally sensitive and high-density population areas and established inventories of pipelines in these areas.

Also in the past year, OPS completed the development of its national pipeline mapping system (NPMS), an initiative the pipeline industry was reluctant to support, so Congress mandated it in the Act of 2002. This is also a noteworthy accomplishment because in order to provide effective oversight of the Nation's pipeline system, OPS must first know where the pipelines are located, the size and material type of the pipe, and the types of products being delivered.

NPMS is fully operational and has mapped 100 percent of the hazardous liquid (approximately 160,000 miles of pipeline) and natural gas transmission (more than 326,000 miles) pipeline systems operating in the United States. Congress exempted natural gas distribution pipelines from the mapping mandate, so

currently OPS does not have mapping data on the approximately 1.8 million miles of this type of pipeline.

As a result, Government agencies and industry have access to reasonably accurate pipeline data in the event of emergency or potentially hazardous situations. The public also has access to contact information about pipeline operators within their specified geographic areas.

Table 2 identifies a selection of actions taken by OPS to implement mandates since our March 2000 report.

Table 2. Selection of OPS Actions To Implement Mandates Since Our March 2000 Report

Issuance Date	Final Rules Issued by RSPA/OPS to Implement Mandates
9/8/2000	Final rule requiring that a report of abandonment be submitted to the Secretary of Transportation by the last operator of an abandoned natural gas or hazardous liquid pipeline facility that is located offshore or crosses under, over, or through a commercially navigable waterway
12/1/2000	Final rule requiring operators of 500 miles or more of hazardous liquid pipelines to develop integrity management programs
12/21/2000	Final rule defining areas unusually sensitive to environmental damage
1/8/2002	Final rule relating to the reporting of accidents involving hazardous liquid pipelines
1/14/2002	Final rule on repair provisions for hazardous liquid pipelines pertaining to the integrity management program
1/16/2002	Final rule extending integrity management programs to operators of less than 500 miles of hazardous liquid pipelines
8/6/2002	Final rule defining areas of high consequence where the potential consequences of a gas pipeline accident may be significant or may do considerable harm to people and their property
12/15/2003	Final rule requiring operators to develop integrity management programs for natural gas transmission pipelines

It is important to note that even though some rules have been issued in their final form, they will not be fully implemented for many years. For example, as part of the rules requiring integrity management programs for operators:

- The operators of more than 500 miles of hazardous liquid pipelines have 7 years from the effective date of the final rule to complete baseline inspections to determine the existing condition of their pipelines. The baseline inspections period for these hazardous liquid pipeline operators will not end until March 2008.

  Prior to the issuance of the final rule, there had been considerable debate on whether the initial baseline inspection period of 7 years was excessive and that a 5-year timeframe might be more desirable given the importance of the information to be developed during baseline inspections. However, because smart pigs are the preferred method for conducting pipeline assessments under the rule, reasonable estimates of growth rates for the smart pig industry would have made a 5-year timeframe difficult to achieve. A 7-year timeframe appeared more feasible.

- The operators of less than 500 miles of hazardous liquid pipelines have 7 years from the effective date of the final rule to complete baseline inspections to determine the existing condition of their pipelines. The final rule went into effect February 15, 2002, meaning that the baseline inspection period for these hazardous liquid pipeline operators will not end until February 2009.

- The operators of natural gas transmission pipelines are required to begin baseline integrity inspections no later than June 17, 2004, with inspections completed no later than December 17, 2012.

Although OPS has made significant progress, several mandates remain outstanding, with most awaiting final rulemaking. Currently, six mandates from legislation enacted in 1992 and 1996 remain outstanding. All are over 8 years past due. Table 3 identifies those mandates OPS has yet to implement since our March 2000 report.

- Two of the six mandates that would require periodic inspections of all offshore and navigable waterway hazardous liquid and natural gas pipeline facilities are in rulemaking, and OPS expects final rules to be issued in August 2004.

- One mandate, a report due to Congress on a study concerning how to abandon underwater pipelines, is in the clearance process with an expected release in July 2004.

- Two mandates, which are a decade overdue, would define "natural gas and hazardous liquid gathering lines" so as to determine which lines can

and should be regulated. OPS published a Notice of Proposed Rulemaking (NPRM) in the Federal Register on natural gas gathering lines for comment and discussion in March 1999 and published an advisory bulletin in October 2002. This mandate is still under discussion, with a supplemental notice expected in December 2004. OPS expects to issue a NPRM on hazardous liquid gathering lines for comment in December 2004.

- One mandate is still under discussion, with a final rule expected in August 2004. This mandate would clarify a requirement that new and replaced hazardous liquid and natural gas transmission pipelines be able to accommodate smart pigs.

Table 3. Status of Outstanding Mandates from Legislation Enacted in 1992 and 1996

Pipeline Act & Section	Mandate	Status
1992 *Sec. 108*	Require periodic inspection of all offshore and navigable waterway natural gas pipeline facilities	NPRM published and awaiting public comment, final rule expected August 2004
1992 *Sec. 207*	Require periodic inspection of all offshore and navigable waterway hazardous liquid pipeline facilities	NPRM published and awaiting public comment, final rule expected August 2004
1992 *Sec. 307(b)*	Prepare a report to Congress on a study concerning how to abandon underwater pipelines	Report is in the clearance process, report expected July 2004
1992 *Sec. 109(b)*	Define and regulate natural gas gathering lines	NPRM comments under discussion, supplemental notice expected December 2004
1992 *Sec. 208(b)*	Define and regulate hazardous liquid gathering lines	OPS is coordinating with the states and industry to develop a definition, NPRM expected December 2004
1996 *Sec. 4e(1)*	To the extent possible, new and replaced hazardous liquid and natural gas transmission pipelines must accommodate smart pigs	Final rule issued in April 1994, but enforcement was stayed by OPS for some gas transmission pipelines in rural areas; final rule on the stay expected August 2004

NPRM: Notice of Proposed Rulemaking

OPS officials explained that daily workload, staffing, other priorities, and the unpredictable nature of rulemaking and administrative processing have slowed implementation of these mandates. For example, they explained that as part of the rulemaking process, the Office of the Secretary and Office of Management and Budget each must clear significant rules. Each of these clearances can take as little time as a day or as long as 90 days.

While we acknowledge rulemaking can be a lengthy and unpredictable process, in our opinion OPS can and should focus on expediting final rule implementation for these long-outstanding mandates from legislation enacted in 1992 and 1996, as all are over 8 years past due with the oldest mandates 11 years past due. Also, the Secretary has taken an active interest in improving DOT's rulemaking process and has emphasized to senior DOT managers the need to ensure that rules are completed in a timely manner or that problems and issues causing delays are identified and fixed.

CLOSING THE SAFETY GAP ON NATURAL GAS DISTRIBUTION PIPELINES

The Nation's natural gas distribution system makes up 1.8 million miles (over 85 percent) of the 2.1 million miles of natural gas pipelines in the United States. Distribution is the final step in delivering natural gas to end users such as homes, businesses, and industries. Nearly all of the natural gas distribution pipelines are located in highly populated areas, such as business districts and residential communities, where a rupture could have the most significant consequences.

However, integrity management safety mandates that govern hazardous liquid and natural gas *transmission* pipelines do not apply to natural gas *distribution* pipelines. For example, the Pipeline Safety Improvement Act of 2002 requires that the operators of a natural gas facility implement IMPs. However, the IMP requirement only applies to operators of natural gas *transmission* pipelines. As part of the IMP rule, operators of natural gas transmission pipelines are required to inspect the integrity of their pipelines using one or more of the following inspection methods: smart pigs, pressure testing, or direct assessment.[24]

According to officials of the American Gas Association, the initial reason for not requiring operators of natural gas distribution pipelines to have IMPs is that distribution pipelines cannot be inspected using smart pigs. The smart pig technologies currently available cannot be used in natural gas distribution

[24] Operators can choose another technology that demonstrates an equivalent understanding of the integrity of the pipeline but only after notifying OPS before the inspection begins.

pipelines because the majority of distribution piping is too small in diameter (1 to 6 inches) and has multiple bends and material types intersecting over very short distances.

The IMP is a risk-management tool designed to improve safety, environmental protection, and reliability of pipeline operations. That natural gas distribution pipelines cannot be internally inspected using smart pigs is not by itself a sufficient reason for not requiring IMPs for operators of natural gas distribution pipelines. Other elements of the IMP can be readily applied to this segment of the industry, including but not limited to (1) a process for continual integrity assessment and evaluation, (2) an analytical process that integrates all available information about pipeline integrity and the consequences of failure, and (3) repair criteria to address issues identified by the integrity assessment and data analysis.

Our concern is that the Department's strategic safety goal is to reduce the number of transportation-related fatalities and injuries, but natural gas distribution pipelines are not achieving this goal. Of the major pipeline accidents occurring from January 1, 1994, through December 31, 2003, OPS's data show (as seen in Table 4) accidents in natural gas distribution pipelines (1,228 accidents) were 50 percent *fewer* than accidents in hazardous liquid and natural gas transmission pipelines combined (2,458 accidents). However, accidents in natural gas distribution pipelines have caused more than *4 times* the number of fatalities (174 fatalities) and more than *3.5 times* the number of injuries (662 injuries) when compared to a combined total of 43 fatalities and 178 injuries associated with hazardous liquid and gas transmission pipeline accidents.

Table 4. Pipeline Accidents, Fatalities, and Injuries January 1994 through December 2003

Type of Pipeline Segment	Total Number of Accidents	Total Number of Fatalities	Total Number of Injuries	Average Number of Fatalities per Year	Average Number of Injuries per Year
Natural Gas Distribution	1,228	174	662	17.4	66.2
Hazardous Liquid	1,666	17	81	1.7	8.1
Natural Gas Transmission	792	26	97	2.6	9.7

Also, the average number of fatalities and injuries per year caused by natural gas distribution pipelines (17 and 66, respectively), exceeds the average number of 4 fatalities and 18 injuries per year caused by hazardous liquid and natural gas transmission pipelines accidents combined. The risk is greater that there will be more fatalities and injuries when an accident involving natural gas distribution pipelines occurs, given that nearly all of these pipelines are concentrated in highly populated areas, both in residential communities and business districts (.14 fatalities per accident for natural gas distribution versus .01 for hazardous liquid and .03 for natural gas transmission pipelines).

Furthermore, accidents involving natural gas distribution pipelines can be as catastrophic as accidents involving hazardous liquids or natural gas transmission pipelines. For example, on December 11, 1998, in downtown St. Cloud, Minnesota, a communications crew ruptured an underground plastic gas distribution pipeline causing an explosion that killed 4 people, seriously injured 1 person, and injured 10 others. Six buildings were destroyed. In another example, in July 2002, a gas explosion in a multiple-family dwelling in Hopkinton, Massachusetts, killed 2 children and injured 14 other residents. Rescue efforts were halted for more than 90 minutes while utility workers searched for a way to cut off the gas to the site.

Since OPS's new pipeline safety program is based on managing risks from a system perspective, it seems contradictory to exclude natural gas distribution pipelines from integrity management rules, given this segment of the industry's safety record over the 10-year period beginning in 1994. For that period, OPS's data show that there has been no steady decreasing trend in the number of accidents, fatalities, and injuries involving natural gas distribution pipelines.

In fact, in the past 3 years, the number of fatalities and injuries from accidents involving natural gas distribution pipelines has increased while the number of fatalities and injuries from accidents involving hazardous liquid and natural gas transmission pipelines has held steady or declined (as seen in Table 5). OPS's data show that fatalities and injuries from accidents involving natural gas distribution pipelines increased from 5 fatalities and 46 injuries in 2001 to 11 fatalities and 58 injuries in 2003. For the same period, fatalities and injuries from accidents involving hazardous liquid and natural gas transmission pipelines decreased from 2 fatalities and 15 injuries in 2001 to 1 fatality and 13 injuries in 2003.

Table 5. Pipeline Fatalities and Injuries for the Period January 2001 to December 2003

Year	Natural Gas Distribution	Natural Gas Transmission	Hazardous Liquids
2001	5 Fatalities 46 Injuries	2 Fatalities 5 Injuries	0 Fatalities 10 Injuries
2002	9 Fatalities 45 Injuries	1 Fatality 5 Injuries	1 Fatality 0 Injuries
2003	11 Fatalities 58 Injuries	1 Fatality 8 Injuries	0 Fatalities 5 Injuries
3-Year Total	**25 Fatalities 149 Injuries**	**4 Fatalities 18 Injuries**	**1 Fatality 15 Injuries**

OPS's data also show that excavation damage was the leading cause of accidents involving natural gas distribution pipelines. In the past 5 years (1999-2003), 46 percent of the accidents involving natural gas distribution pipelines were caused by excavation damages, with a high of 49 percent in 2003. To address this concern, OPS undertook an initiative called the Common Ground Study of One-Call Systems and Damage Prevention Best Practices. This initiative involved a broad spectrum of more than 160 damage prevention stakeholders to identify, define, and agree on best practices that governed all aspects of damage prevention, including excavation, at underground facilities. One such best practice of damage prevention is holding a pre-excavation meeting with owners/operators who have underground facilities in the area of the proposed excavation.

Although OPS has moved forward with this and other initiatives[25] to enhance the safety of natural gas distribution pipelines, OPS needs to ensure that the pace of its efforts moves quickly enough given the upward trend in fatalities and injuries involving these pipelines, as well as the projected increase in distribution pipelines to meet the increasing demand for natural gas. According to the Department of Energy, the demand for natural gas in the United States is likely to increase 50 percent by 2020.

OPS has the basic authority to issue standards requiring IMPs that cover natural gas distribution pipelines. OPS should require operators of natural gas distribution pipelines to implement some form of pipeline integrity management or enhanced safety program with the same or similar integrity management elements as the hazardous liquid and natural gas transmission pipelines. This would be consistent with OPS's risk-based approach to overseeing pipeline safety using IMPs to reduce the risk of accidents that may cause injuries or fatalities to people living or

[25] With OPS support, the American Gas Foundation is sponsoring a study that identifies the practices distribution operators use to manage the integrity of their distribution systems and the areas where improvements could be made.

working near natural gas distribution pipelines, as well as to reduce property damage.

R&D Funding and Pipeline Inspection Technologies

OPS's R&D program is aimed at enhancing the safety and reducing the potential environmental effects of transporting natural gas and hazardous liquids through pipelines. Specifically, the program seeks to advance the most promising technological solutions to problems that imperil pipeline safety, such as damage to pipelines from excavation or corrosion. OPS sponsors R&D projects that focus on providing near-term solutions that will increase the safety, cleanliness, and reliability of the Nation's pipeline system.

As is shown in Figure 1, recent R&D funding has focused on damage protection and leak detection, enhanced operations and controls, improved materials performance, and mapping and information integrity. These projects address technological solutions that can be quickly implemented (preferably within 2 years) to improve pipeline safety.

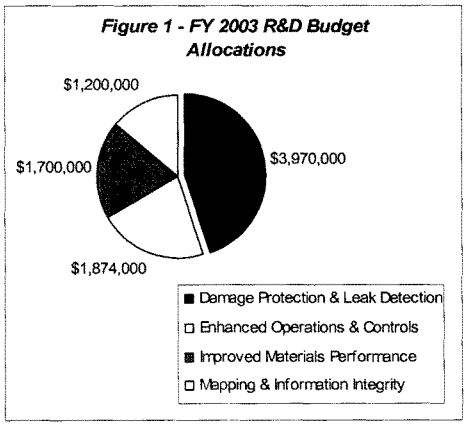


Figure 1 - FY 2003 R&D Budget Allocations

R&D funding has more than tripled, from $2.7 million in FY 2001 to $8.7 million in FY 2003. Nearly $4 million of the $8.7 million is funding projects to improve the technologies used to inspect the integrity of pipeline systems in support of the IMP.

R&D projects currently funded have increased in size and scope, from a single project before 2001 to 22 active projects in 2004. These projects explore a variety of ways to improve smart pig technologies, develop alternative inspection and detection technologies for pipelines that cannot accommodate smart pigs, and improve pipeline material performance. With the increase in R&D spending and activity, the challenge OPS now faces is seeing these projects through to completion, without undue delay and expense, to ensure that viable, reliable, cost-effective technologies become readily available to meet the demands of

increased usage required under the IMP. This becomes an even larger challenge as an estimated 10 to 15 additional R&D projects are planned to begin in late 2004.

We visited two major research facilities doing work for OPS to evaluate projects' progress and oversight. Of eight internal inspection research projects we reviewed, four projects were behind schedule, did not file quarterly performance reports, or both.

For example, a contract awarded to the Battelle Memorial Institute for a 24-month project was scheduled to begin October 1, 2002. However, the project was delayed 12 months due to a lack of industry funding,[26] and work did not start until October 2003. The project was scheduled to be completed in September 2004 but has been extended another 6 months, with a projected completion date of March 2005. This project is unique in that it will improve the capabilities of smart pigs to detect and measure both corrosion and mechanical damage. Smart pigs currently in use can successfully detect and measure corrosion, dents, and wrinkles but are less reliable in detecting other types of mechanical damage. The expected project outcome is a smart pig that is simpler to build and use.

At the time of our visits to the research facilities, OPS had just one inspector monitoring all eight projects. OPS recognized the need to increase its R&D oversight and has assigned additional staff to monitor the projects. Also, OPS has developed and implemented an internet-based system to electronically manage pre-award activities (e.g., issuance of announcements, receipt and review of proposals). OPS is developing a component to monitor post-award activities, such as managing project costs, schedules, and performance.

OPS needs to complete its internet-based system component for monitoring post-award activities of these projects to ensure that viable, reliable, cost-effective technologies become readily available to meet the requirements of the IMP and to ensure efficient and effective management of its R&D funds. To augment its electronic monitoring of project schedule, costs, and performance, OPS also needs to ensure that staff who oversee the projects make periodic visits to the research facilities. Contractor performance and product quality are best observed during on-site visits to the research facilities.

[26] OPS funds up to 50 percent of a project's costs but no more than $500,000 per project. Under an agreement between OPS and the research institutes, project participants are required to contribute at least 50 percent of the project cost.

Training Needs for Smart Pig Operations

To read and interpret the results of a smart pig inspection requires a skilled and trained inspector. Before FY 2002, there was no OPS course designed to provide its inspectors with the knowledge and skills required to evaluate smart pigging programs of natural gas and hazardous liquid pipelines.[27] Recognizing the need to address this issue, in December 2001, OPS implemented such a course. OPS IMP inspectors are required to take this course as part of their advanced training in assessments of the pipeline operators' IMPs. As of May 31, 2004, 110 Federal and state inspectors have taken the advanced training, with an additional 58 Federal and state inspectors scheduled to do so by the end of 2004.

Also, IMP inspectors are actively overseeing the IMP implementation through their assessments of hazardous liquid pipeline operators' IMP plans—the first segment of the industry required to implement the IMP. As of April 30, 2004, results from OPS's IMP assessments disclosed, among other things, that (1) the 63 largest operators of hazardous liquid pipelines have undergone IMP assessments, (2) smart pigs were used by the pipeline operators about 70 percent of the time to conduct their baseline integrity inspections of hazardous liquid pipelines, and (3) more than 20,000 integrity threats were remediated as part of the operators' IMPs.

Of the more than 20,000 threats that have been identified and repaired to date, more than 1,200 required immediate repair, 760 required repairs within 60 days, and 2,400 required repairs within 180 days. More than 16,300 threats fall into the category of other repairs where remediation activities are not considered time-sensitive. OPS's remediation criteria encompass a broad range of actions, which include mitigative measures (e.g. reducing the pipeline pressure flow) as well as repairs that an operator can take to resolve an integrity threat. For immediate repairs, an operator must temporarily reduce operating pressure or shut down the pipeline until the operator completes the repairs.

The challenges inspectors face during a review of an operator's baseline integrity inspection results is to determine whether OPS's repair criteria were properly used to characterize the type of repair required for each threat identified and whether the operator's threat remediation plans are adequate to repair or mitigate the threat. More importantly, however, is that OPS will need to follow up to ensure that the operator has properly executed its remediation actions within the defined time limit.

[27] All OPS inspectors are required to take an awareness course on internal inspection technologies as part of their 9-course basic training.

With the expected increase in use of smart pigs as the preferred inspection tool and with research underway to advance smart pig technology, OPS must now ensure its inspector workforce knowledge base is commensurate with the increased usage of and technological advances in smart pigs. OPS's IMP assessments have found that operators of hazardous liquids pipelines used smart pigs about 70 percent of the time to conduct their pipeline inspections and strongly favored the use of smart pigs over alternative inspection methods available under the IMP. Also, it is expected that increased funding in smart pig R&D will improve on the technology to allow more pipeline mileage to be inspected using smart pigs instead of alternative inspection methods.

Current training course curricula may have to be revised to account for the increased usage of and advances in the technologies used to inspect the integrity of pipeline systems. For example, R&D is currently underway to develop a smart pig that is capable of detecting and measuring both corrosion and mechanical damage. Smart pigs currently in use can successfully detect and measure corrosion but are not reliable in detecting mechanical damage. IMP inspectors will need to be aware of this technological breakthrough when it happens and become familiar with the function, proper selection, and use of a multi-detecting/measuring smart pig and its data.

Pipeline Accident Data Collection and Analysis

Data collection and analysis of pipeline accidents have been longstanding problems at OPS. In 1997, the NTSB noted significant problems with pipeline accident data collection and analysis and recommended that OPS revise its reporting forms and instructions to eliminate overlapping and confusing categories and to include new, more descriptive causal categories. OPS took over 6 years to revise all its reporting forms and instructions.

In January 2002, OPS made available new reporting forms and instructions for accidents involving natural gas transmission and hazardous liquid pipelines, increasing the number of causal categories from 4 to 25 for natural gas transmission pipelines and from 7 to 25 for hazardous liquid pipelines. In March 2004, OPS made available a new reporting form and instructions for accidents involving natural gas distribution pipelines, increasing the number of causal categories from 5 to 25. The new reporting forms and instructions also require operators to indicate if the data being provided are initial, supplemental, or final.

With the added causal categories, OPS will have access to far more detailed information about the various causes of pipeline accidents. Inspectors in the OPS regions are required to assess accident reports to ensure that the operators are, at a

minimum, complying with the reporting form instructions and providing reliable and timely data about the accident, which can be verified by requesting additional accident information from the operator. In the past, the lack of a comprehensive internal review process has been a weakness in the collection of complete and accurate accident information.

We examined this internal review process and found that the assessment procedures varied among OPS's regions. Some regions reviewed all submitted reports, others reviewed only reports on interstate pipelines inspected by OPS, and one region was not reviewing any of the reports. In our discussions about these inconsistencies, OPS officials stated the procedures were new, being pilot-tested in one region, and still a work in progress, but they acknowledged the need to ensure the consistency of regional reviews.

After accidents, OPS needs to effectively assess root causes, identify appropriate corrective actions, and ensure that the operator provides the most current accident information when additional information becomes available. To do this, OPS began improving its process of internal review of accident information by developing written guidelines and conducting the first of several quarterly sessions of formal training for personnel responsible for the internal review process. According to OPS, training will be ongoing until it has established best practices for internal review of operator accident information.

As more accident data are collected, data analysis becomes an integral component in assessing and evaluating the performance of the IMP, identifying safety trends, and reporting program results, such as in the annual performance report to Congress required under the Government Performance and Results Act. However, the quality of OPS's data analysis and reporting is only as good as the timeliness, completeness, and accuracy of data submitted by the operators. At the time of our review, the requirement that operators use the new accident reporting forms and instructions was in the early stages of implementation, and it was too soon to tell whether the new accident reporting forms and instructions would improve the comprehensiveness and quality of data.

As we have seen in other DOT programs, the quality and timeliness of the data are key to an effective program. We recently reported on the Federal Motor Carriers Safety Administration's (FMCSA) Motor Carrier Safety Status Measurement System (SafeStat)[28] and found that significant problems existed with the data motor carriers and the states provide to FMCSA, such as errors and omissions in the data records. These data problems limited SafeStat's effectiveness and introduced bias into the ranking process for targeting high-risk motor carriers.

[28] Report Number MH-2004-034, "Improvements Needed in the Motor Carrier Safety Status Measurement System," February 13, 2004.

To avoid future problems and to ensure that operators' data can be relied on to help target its oversight resources, OPS needs to finalize and implement the best practices for its internal review process, including procedures to review data quality to ensure that the operators are providing complete and accurate accident information. As part of its data quality review, OPS should include reviews of source documentation to make sure accident data submitted to OPS by the pipeline operators are complete and accurate. OPS should take enforcement action against those operators who are not complying with the reporting requirements.

Closing-out Long-overdue NTSB Safety Recommendations

The NTSB is an independent Federal agency charged, in part, with investigating pipeline accidents involving a fatality or substantial property damage. NTSB recommendations—issued to OPS through RSPA—are intended to prevent future accidents and promote safety. DOT policy requires its Operating Administrations to reply to NTSB recommendations within 90 days of receipt. For recommendations with which the Operating Administration concurs, the response must include an implementation timetable. Timetables establish completion dates and allow RSPA to measure OPS's progress in implementing NTSB recommendations. DOT policy also requires that all actions proposed in response to NTSB's recommendations be pursued expeditiously.

PROGRESS IN IMPLEMENTING NTSB RECOMMENDATIONS

We found OPS has closed out 21 of 23 NTSB safety recommendations we identified in our March 2000 report. One of the remaining two open NTSB recommendations is considered by OPS as being in the close-out phase (i.e., acceptable action taken by OPS, close-out letter to NTSB for review).[29] Nevertheless, some of these recommendations had been open for 15 years, with acceptable actions just recently having been completed. For the 21 recommendations OPS closed, we found an average issuance-to-closure time of 6.4 years, with a range of 3.3 years to 17.1 years. Some of the recommendations had been open since the early 1990s and were the catalysts for many of the mandates in legislation enacted in 1992 and 1996.

Since our March 2000 report, OPS has shown considerable progress in fully implementing NTSB recommendations. OPS has received 13 new NTSB recommendations, of which 8 have been closed; 7 of those 8 recommendations

[29] Exhibit C contains a list of NTSB recommendations that remain open.

were closed within 2 years of issuance. OPS expects the remaining five open recommendations to be closed by the end of 2005, within 4 years of issuance.

OPS should continue expeditiously implementing all open NTSB recommendations, especially the recommendations addressing issues that are fundamental to the integrity of the pipeline system. One such recommendation still open requires OPS to revise its regulations so that new or replaced pipelines be designed and constructed with features to mitigate internal corrosion. The significance of this recommendation cannot be overstated, as corrosion is the second leading cause of pipeline accidents.

OPS RESPONSES OFTEN NOT TIMELY OR COMPLETE

As we reported in March 2000, OPS's responses to NTSB recommendations were often incomplete and not timely: 21 of 23 NTSB recommendations selected for review were without timetables. Of the 13 new recommendations OPS received since our March 2000 report, only 3 were processed in accordance with DOT policy. OPS did not respond to NTSB on five recommendations within the required 90 days, and five responses did not include an implementation timetable.

OPS officials agreed their processing was deficient for those 10 new recommendations. Further, they acknowledged they did not have specific written policy and procedures addressing NTSB recommendation processing. However, they disagreed that written procedures would correct the problems we identified and felt a documented process explaining how to accomplish their daily work was both impractical and unnecessary. Nonetheless, without the additional written procedural guidance, there is insufficient assurance that key safety recommendations will be addressed in a timely manner or completely.

Pipeline Security Roles and Responsibilities

Threats of attacks on the Nation's pipeline infrastructure existed before September 11, 2001. For example, in December 1999, Federal agents arrested two anti-government militia members for plotting to detonate 24 million gallons of liquid propane at a storage facility in Elk Grove, California. This event prompted OPS to establish requirements for operators of liquid petroleum gas facilities to develop:

- Security procedures, including security patrols of the facility,
- Instructions for actions to be taken if a security breach occurs,

- Methods for determining which persons are allowed access to the plant,
- Positive identification of persons entering the plant,
- A liaison with local law enforcement to keep them informed about current security procedures, and
- Training of security personnel according to a written plan of instructions on security procedures.

For pipelines containing liquids other than liquid petroleum gas, OPS requires operators to provide protection for each pumping station and other exposed facility from vandalism and unauthorized entry.

Following the events of September 11, 2001, OPS moved forward on several fronts to help reduce the risk of terrorist activity against the Nation's pipeline infrastructure, such as opening the lines of communication among Federal and state agencies responsible for protecting the Nation's critical infrastructure, including pipelines; conducting pipeline vulnerability assessments and identifying critical pipeline systems; developing security standards and guidance for security programs; and working with Government and industry to advance rapid response and recovery of the pipeline system in the event of a terrorist attack.

To protect the Nation's pipeline infrastructure, OPS issued new security guidance to pipeline operators nationwide in September 2002. In the guidance, OPS requested that all operators develop security plans to prevent unauthorized access to pipelines and identify critical facilities that are vulnerable to a terrorist attack. OPS also asked operators to submit a certification letter stating that the security plan had been implemented and that critical facilities had been identified.

OPS estimates pipeline companies responsible for the operation of about 90 percent of the Nation's pipelines have submitted a security plan and a certification letter. During 2003, OPS in conjunction with the Transportation Security Administration (TSA) initiated a review of operator security plans. The plans reviewed have been judged responsive to the OPS guidance.

PIPELINE SECURITY ROLES AND RESPONSIBILITIES NEED TO BE SOLIDIFIED

Unlike its pipeline safety program, OPS's security guidance is not mandatory; industry's participation in a security program is strictly voluntary and cannot be enforced unless a regulation is issued to require industry compliance. In fact, it is

still unclear what agency or agencies will have responsibility for pipeline security rulemaking, oversight, and enforcement.

This ongoing issue has caused considerable debate among Federal, state, and local governments on where the lines of authority should be drawn. Although OPS took the lead to help reduce the risk of terrorist activity against the Nation's pipeline infrastructure following September 11, 2001, OPS has stated it now plays a secondary role to TSA, which has primary responsibility for ensuring the security of the Nation's pipeline system.

Certain steps have been taken to establish what agency or agencies would be responsible for ensuring the security of the Nation's critical infrastructure, including pipelines. For example, in December 2003, Homeland Security Presidential Directive/HSPD-7:

- Assigned the Department of Homeland Security (DHS) the responsibility for coordinating the overall national effort to enhance the protection of the Nation's critical infrastructure and key resources.
- Assigned the Department of Energy (DOE) the responsibility for ensuring the security of the Nation's energy, including the production, refining, storage, and distribution of oil and gas.
- Directed DOT and DHS to collaborate (1) on all matters relating to transportation security and transportation infrastructure protection, and (2) in regulating the transportation of hazardous materials by all modes, including pipelines.

Although HSPD-7 directs DOT and DHS to collaborate, it is not clear from an operational perspective what "to collaborate" encompasses, and it is also not clear what DOT's relationship will be with DOE. To be useful in the operating environment, the delineation of roles and responsibilities between DOT and DHS needs to be solidified. As a matter of national security, this collaborative effort should be solidified through a binding legal document, such as a Memorandum of Agreement or Memorandum of Understanding. Also, OPS needs to seek clarification on roles and responsibilities between itself and DOE.

RECOMMENDATIONS

We recommend that RSPA ensures that OPS:

1. Completes its actions on the remaining six mandates from legislation enacted in 1992 and 1996.

2. Require operators of natural gas distribution pipelines to implement some form of pipeline integrity management or enhanced safety program with the same or similar integrity management elements as the hazardous liquid and natural gas transmission pipelines.

3. Completes its internet-based system for monitoring its R&D project costs, schedules, and performance.

4. Finalizes and implements "best practices" for its internal review process, including procedures to review data quality, to ensure that the operators are providing current, complete, and accurate accident information. OPS should also take enforcement action against those operators who are not complying with the reporting requirements.

5. Completes its actions to close out the remaining five NTSB recommendations identified in this report.

6. Implements a formal internal policy and procedures for responding to NTSB recommendations so that key safety recommendations are addressed completely and in a timely manner in accordance with DOT policy.

7. Seeks clarification on roles and responsibilities between itself and DOE.

MANAGEMENT COMMENTS AND OFFICE OF INSPECTOR GENERAL RESPONSE

In responding to a draft of this report, RSPA agreed in general with our recommendations and stated that work is underway to address all outstanding issues identified in the draft report.

OPS provided specific comments on the recommendations, detailing the corrective actions planned or ongoing to close out our recommendations. For Recommendations 1, 3, 4, 5, 6, and the second part of 7, we consider OPS comments to be positive and constructive, and OPS actions taken and planned for the recommendations are reasonable. However, for Recommendation 2, RSPA comments were not fully responsive, and we are requesting some additional information. We are also withdrawing the first part of Recommendation 7.

OPS's comments to Recommendations 1, 3, 4, 5, and 6 are summarized below.

- **Recommendation 1. Concur.** OPS agreed to complete its actions on the remaining six mandates from legislation enacted in 1992 and 1996 by December 2004.

- **Recommendation 3. Concur.** OPS is expected to finalize its internet-based system for monitoring R&D project costs, schedules, and performance by October 2004.

- **Recommendation 4. Concur.** OPS is currently pilot testing new procedures for its internal review process. Expected completion of best practices is March 2005.

- **Recommendation 5. Concur.** OPS agreed to complete provided updated actions and completion dates for NTSB recommendations that remain open since our March 2000 report.

- **Recommendation 6. Concur.** OPS agreed to close out the remaining five NTSB recommendations identified in this report by December 2005.

- **Second part of Recommendation 7. Concur.** OPS agreed to clarify its security roles and responsibilities between itself and DOE.

OPS's comments and OIG responses to **Recommendations 2** are summarized below.

- **Recommendation 2. Concur.** OPS stated that before the passage of the Act of 2002, it challenged industry to develop a framework to gas distribution IMPs, and further stated that industry, state, and Federal regulators are now working to develop natural gas distribution IMPs and that a public workshop to discuss IMP concepts is planned for December 2004.

Other than indicating that it is working with the states and industry to develop and IMP for natural gas distribution pipelines and plans to hold a public workshop to discuss IMP concepts in December 2004, RSPA did not indicate when it expected to require an IMP for natural gas distribution pipelines. We requested that RSPA clarify this issue.

We are withdrawing our recommendation that RSPA ensure that OPS petition the DOT, through RSPA, to execute a Memorandum of Agreement or MOU with DHS, formalizing the security roles and responsibilities of OPS and DHS's Transportation Security Administration.

Since we made this recommendation, DOT's Deputy Secretary has made it clear that an MOU is needed, and we understand that the Deputy Secretary has

communicated this to DHS. We hope an MOU between DOT and DHS can be consummated by September 1, 2004. DOT should keep the appropriate Congressional committees apprised of its progress in consummating an MOU with DHS.

In commenting on the findings in the draft report, there was one issue that RSPA believed needed to be clarified. In the draft report, we stated that natural gas distribution pipelines were excepted from integrity management safety mandates that govern hazardous liquid and natural gas transmission pipelines. According to RSPA:

> The statement was misleading in that it implies that OPS have taken action to "except" gas distribution pipelines from the integrity management programs. The fact is, Federal law only mandated that transmission pipelines be assessed, so the Office of Pipeline Safety (OPS) only addressed transmission pipelines first.

We never intended to imply that OPS had excepted natural gas distribution from the IMPs and are aware that the Pipeline Safety Improvement Act of 2002 mandated IMPs for operators of only natural gas transmission pipelines. Section 14 of the 2002 Act required each operator of a gas pipeline facility subject to 49 United States Code Section 60109 to adopt and implement an IMP. However, natural gas distribution pipelines are *excepted* from Section 60109 requirements. We have revised our report to clarify that operators' natural gas distribution pipelines are not required to implement IMPs.

EXHIBIT A. GAS PIPELINE SYSTEM DIAGRAM

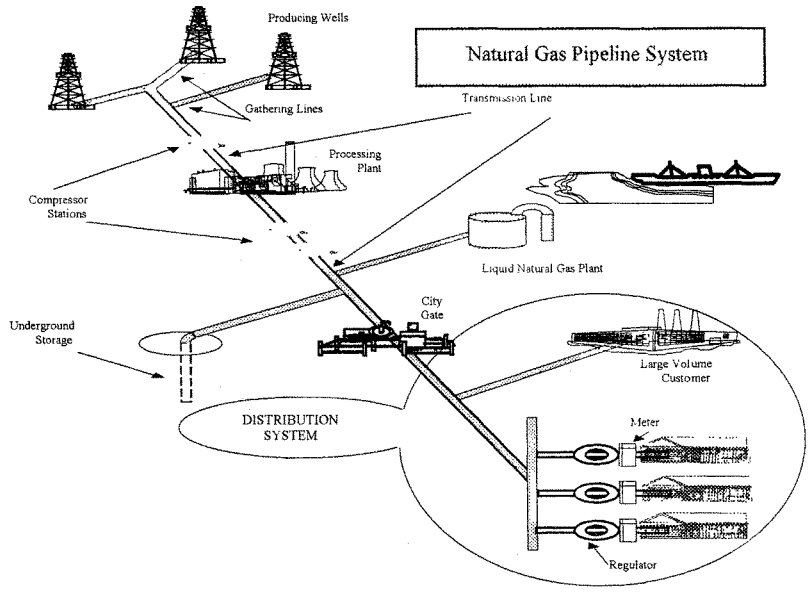


EXHIBIT A. Gas Pipeline System Diagram 29

EXHIBIT B. GLOSSARY OF PIPELINE TERMS

Corrosion	Destruction of a metal by a chemical or electrochemical reaction with its environment.
Distribution	The act or process of delivering gas from the city gate or plant to the consumers.
Distribution System	Generally the mains, services, and equipment that carry or control the supply of gas from the point of local supply to and including the sales meters.
Gathering Line	A pipeline, usually of small diameter, used in moving gas or hazardous liquid from the field to a central point.
Gathering System	A network of pipelines transporting natural gas from individual wells to the compressor station, processing point, or main trunk pipeline.
High-Consequence Area	Regions of the United States where the consequences of a hazardous liquid leak or spill could be considered significant. This includes unusually sensitive areas of the environment, dense population areas (urbanized areas identified by the Census Bureau), other populated areas (other areas of concentrated population defined by the Census Bureau), and commercially navigable waterways.
Inline Inspection (ILI)	A method of inspecting a pipeline using an internal inspection device or smart pig. ILI is also known as Internal Inspection or Smart Pigging. Different ILI techniques and tools are designed to detect defects on the internal and external surfaces of the pipe. Defects can include corrosion, dents, metal loss, and cracks.
Interstate Gas	Gas transported in pipelines to be sold and consumed in states other than the state in which the gas was produced.
Intrastate Gas	Gas sold and consumed in the state in which it is produced and not transported in interstate pipelines.

Operator	An entity that manages and controls a facility and the product moving through that facility. The operator performs the day-to-day operations, contract scheduling, and communications and routinely monitors, tests, and repairs facilities and/or measurement equipment. The operator is not necessarily the owner. A producer-operator operates a well.
Pipeline	All parts of those physical facilities through which gas or hazardous liquids are moved in transportation, including pipe, valves, and other appurtenances attached to pipe; compressor units; metering stations; regulator stations; delivery stations; holders; and fabricated assemblies.
Smart Pig (Intelligent Inspection Device)	An instrumented inspection device that is inserted into the pipeline and pushed through the line by pressure of the flowing gas or liquids. Smart pigs can detect certain irregularities in the pipe wall and record the existence, location, and relative severity of the irregularities using recording equipment carried on board the pig. The pig is later recovered and its data examined to identify the existence and severity of pipeline irregularities.
Transmission System	Pipelines that transmit gas from a source or sources of supply to one or more distribution centers, to one or more large volume customers, or to a pipeline installed to interconnected sources of supply. In typical cases, transmission lines differ from gas mains in that they operate at higher pressures, they are longer, and the distance between connections is greater.

EXHIBIT C. NTSB RECOMMENDATIONS THAT REMAIN OPEN SINCE OUR MARCH 2000 REPORT

Rec. No. and Date Issued	Action Needed	Status
P-90-29 Issued 10/1/90	Develop and implement, with the assistance of the Minerals Management Service, the U.S. Coast Guard, and the U.S. Army Corps of Engineers, effective methods and requirements to bury, protect, inspect the burial depth of, and maintain all submerged pipelines in areas subject to damage by surface vessels and their operations	Acceptable action taken per OPS, close-out letter at NTSB for review
P-98-25 Issued 10/16/98	Require pipeline system operators to precisely locate and place permanent markers at sites where their gas and hazardous liquid pipelines cross navigable waterways	OPS is working with the Common Ground Alliance on a best practice, closure expected December 2005
P-01-02 Issued 6/22/01	Require that excess flow valves be installed in all new and renewed gas service lines, regardless of a customer's classification, when the operating conditions are compatible with readily available valves	OPS states work continues, NPRM expected summer of 2005
P-02-01 Issued 8/2/02	Establish quantitative criteria, based on engineering evaluations, for determining whether a wrinkle may be allowed to remain in a pipeline	Acceptable action taken per OPS, close-out letter at NTSB for review
P-02-04 Issued 10/11/02	Develop and issue guidance to pipeline operators on specific testing procedures that can be used to approximate actual operations during the commissioning of a new pumping station or the installation of a new relief valve and determine during annual tests whether a relief valve is functioning properly	OPS states NTSB will close based on issuance of valve testing guidance bulletin, closure expected November 2004
P-03-01 Issued 2/27/03	Require that new or replaced pipelines be designed and constructed with features to mitigate internal corrosion	OPS is evaluating rulemaking options, NPRM expected summer of 2005

Rec. No. and Date Issued	Action Needed	Status
P-03-03 Issued 2/27/03	Evaluate OPS's pipeline operator inspection program to identify deficiencies that resulted in the failure of inspectors, before the Carlsbad, NM, accident, to identify the inadequacies in the El Paso Natural Gas Company's internal corrosion control program; implement the changes necessary to ensure adequate assessments of pipeline operator safety programs	OPS states work is completed, closure is expected in October 2004

OPS: Office of Pipeline Safety
NPRM: Notice of Proposed Rulemaking
NTSB: National Transportation Safety Board

EXHIBIT D. MAJOR CONTRIBUTORS TO THIS REPORT

THE FOLLOWING INDIVIDUALS CONTRIBUTED TO THIS REPORT.

Name	Title
Scott Macey	Program Director
Greggory S. Bond	Project Manager
Stephen L. Jones	Senior Auditor
Kim P. Tieu	Senior Auditor
Earl G. Kindley	Auditor
Robert Y. Lee	Auditor
Susan M. Zimmerman	Auditor
Kathleen Huycke	Writer-Editor
Petra Swartzlander	Statistician

APPENDIX. MANAGEMENT COMMENTS

U.S. Department of Transportation
Research and Special Programs Administration

Memorandum

Date JUN - 3 2004 Reply to Attn. of:

Subject: Comments on Draft Report on Actions Taken and Needed for Pipeline Safety Project No. 03B3006B000

From: Samuel G. Bonasso
Deputy Administrator

To: Kenneth M. Mead
Inspector General

Thank you for the opportunity to comment on the contents and conclusions in the Office of the Inspector General's (OIG) Draft Report on Actions Taken and Needed for Improving Pipeline Safety (Project No. 03B3006B000) as provided to Deputy Administrator, RSPA by memorandum of May 4, 2004. We appreciate the care and attention that the OIG audit staff has devoted to understanding the pipeline safety program. We agree in general with the OIG's seven recommendations and have work underway to address all outstanding issues. See attachment for proposed actions and completion dates. There is one important issue that we believe should be clarified.

The draft report stated that "[o]ne segment of the pipeline system remains excepted from integrity management safety mandates." The statement is misleading in that it implies that OPS has taken action to "except" gas distribution pipelines from the integrity management programs. The fact is, Federal law only mandated that transmission pipelines be assessed, so the Office of Pipeline Safety (OPS) only addressed transmission pipelines first. We agree that the safety issues posed by distribution pipelines need to be addressed through an appropriate integrity management program requirement once we have some experience with gas transmission pipelines. We have always known that distribution pipelines were the next step in the integrity management program.

In fact in 2002, before the passage of the Pipeline Safety Improvement Act of 2002 (PSIA), we challenged the industry to develop a framework for gas distribution integrity management. The OPS gave presentations to two industry groups: the first was on May 13, 2002 at the American Gas Association (AGA) Operations Conference, and the second on August 20, 2002 at the American Public Gas Association (APGA) Annual Conference. Please reference the attached presentations. On slide 15 of the presentation to the AGA and on slide 14 of the presentation to the APGA, OPS discussed the need to develop a framework for gas distribution integrity management programs.

In these presentations, OPS challenged the membership of the AGA and the APGA to take the lead in vetting parameters for a program. OPS will then review these concepts along with its own findings at the appropriate time when we take action within the Department on an integrity management program for distribution pipelines. This is a proven approach that OPS employs to gain buy-in from industry when improvements are needed.

In answer to the OPS challenge, the American Gas Foundation formed the Distribution Infrastructure Government-Industry Group (DIGIG). On May 14, 2004, OPS provided the OIG audit team a copy of the charter (see attached). The DIGIG consists of industry representatives and State regulators (our interstate partners) with OPS as an observer. It evaluates safety performance, current operating and regulatory practices, and emerging technologies for gas distribution pipelines. The DIGIG is expected to provide guidance on how to apply integrity management principles to gas distribution systems. OPS plans to initiate pilot programs as appropriate to provide practical demonstration of these principles.

I hope these comments are helpful in preparation of the final report. In addition, we are providing some suggestions for miscellaneous editorial corrections as an attachment. If I can provide further information or assistance, please contact me or James Wiggins, Director of Policy and Program Support at (202) 366-4978.

Attachments (5)

OPS RESPONSE TO DRAFT REPORT RECOMMENDATIONS – PROPOSED ACTIONS AND COMPLETION DATES

1. Completes its actions on the remaining six mandates from legislation enacted in 1992 and 1996.

Response: Please note updated actions and completion dates in the status column of the following table.

Status of Outstanding Mandates from Legislation Enacted in 1992 and 1996

Pipeline Act & Section	Mandate	Status
1992 *Sec. 108*	Require periodic inspection of all offshore and navigable waterway natural gas pipeline facilities	Notice of Proposed Rulemaking (NPRM) published and awaiting public comment. Final rule expected August 2004.
1992 *Sec. 207*	Require periodic inspection of all offshore and navigable waterway hazardous liquid pipeline facilities	NPRM published and awaiting public comment. Final rule expected August 2004.
1992 *Sec. 307(b)*	Prepare a report to Congress on a study concerning how to abandon underwater pipelines	Report is in clearance process. Report expected July 2004.
1992 *Sec. 109(b)*	Define and regulate natural gas gathering lines	NPRM comments under discussion, supplemental notice expected December 2004.
1992 *Sec. 208(b)*	Define and regulate hazardous liquid gathering lines	OPS is coordinating with the states and industry to develop a definition, NPRM expected December 2004.
1996 *Sec. 4e(1)*	To the extent possible, new and replacement natural gas transmission pipelines, or hazardous liquid pipeline facilities, must accommodate internal inspection devices	Final rule issued in April 1994, but enforcement was stayed by OPS for some gas transmission pipelines in rural areas; final rule on the stay is expected in December 2004.

2. OPS should require operators of natural gas distribution pipelines to implement some form of pipeline integrity management or enhanced safety program with the same or similar integrity management elements as the hazardous liquid and natural gas transmission pipelines.

Response: Before the passage of the Pipeline Safety Improvement Act of 2002 (PSIA) OPS challenged the industry to develop a framework for gas distribution integrity management programs. OPS made these challenge to the American Gas Association on May 13, 2002 and to the American Public Gas Association on August 20, 2002. The industry, state and Federal Regulators are now working to develop a natural gas distribution integrity management program. A public workshop to discuss concepts an effective gas distribution integrity management program is planned for December 2004.

3. Completes its internet-based system for monitoring its R&D projects' costs, schedules, and performance.

Response: OPS will finalize its internet-based system in conjunction with the publication of the fourth R & D Broad Agency Announcement. Expected completion is October 2004.

4. Finalizes and implements "best practices" for its internal review process, including procedures to review data quality, to ensure that the operators are providing current, complete, and accurate accident information. OPS should also take enforcement against those operators who are not complying with the reporting requirements.

Response: OPS is currently pilot testing new procedures with all of the regional offices. Each region is reviewing monthly status reports and the data team is holding quarterly meetings to develop best practices. OPS currently enforces accident reporting requirements. Expected completion of "best practices" is March 2005.

5. Completes its actions to close out the remaining five NTSB recommendations identified in this report.

Response: Please note updated statements on actions and completion dates in the status column of the following table.

NTSB RECOMMENDATIONS THAT REMAIN OPEN SINCE OIG'S MARCH 2000 REPORT

Recommendation No. and Date Issued	Action Needed	Status
P-90-29 Issued 10/1/90	Develop and implement, with the assistance of the Minerals Management Service, the U.S. Coast Guard, and the U.S. Army Corps of Engineers, effective methods and requirements to bury, protect, inspect the burial depth of, and maintain all submerged pipelines in areas subject to damage by surface vessels and their operations.	OPS has taken acceptable action. Close-out letter is at the NTSB for review.
P-98-25 Issued 10/16/98	Require pipeline system operators to precisely locate and place permanent markers at sites where their gas and hazardous liquid pipelines cross navigable waterways.	OPS is working with the Common Ground Alliance on a best practice. OPS expects to request closure December 2005.
P-01-02 Issued 6/22/01	Require that excess flow valves be installed in all new and renewed gas service lines, regardless of a customer's classification, when the operating conditions are compatible with readily available valves.	OPS continues to work on this controversial issue. OPS plans to publish a NPRM in the summer of 2005.
P-02-01 Issued 8/2/02	Establish quantitative criteria, based on engineering evaluations, for determining whether a wrinkle may be allowed to remain in a pipeline.	OPS has taken acceptable action. Close out letter is at the NTSB for review.
P-02-04 Issued 10/11/02	Develop and issue guidance to pipeline operators on specific testing procedures that can be used to approximate actual operations during the commissioning of a new pumping station or the installation of a new relief valve and determine during annual tests whether a relief valve is functioning properly.	OPS expects the NTSB will close recommendation based on issuance of a valve testing guidance bulletin. OPS expects to publish a bulletin and request closure in November 2004.
P-03-01 Issued 2/27/03	Revise 49 Code of Federal Regulations Part 192 to require that new or replaced pipelines be designed and constructed with features to mitigate internal corrosion.	OPS is evaluating rulemaking options. OPS estimated publication of a NPRM in the summer of 2005.

P-03-03 Issued 2/27/03	Evaluate OPS's pipeline operator inspection program to identify deficiencies that resulted in the failure of inspectors, before the Carlsbad, New Mexico, accident, to identify the inadequacies in the El Paso Natural Gas Company's internal corrosion control program. Implement the changes necessary to ensure adequate assessments of pipeline operator safety programs.	This recommendation is addressed by gas integrity management inspection protocols, inspector training and new NACE standards for internal corrosion. OPS expects to request closure in October 2004.

6. Implements a formal internal policy for responding to NTSB recommendations so that key safety recommendations are addressed completely and in a timely manner in accordance with DOT policy.

Response: OPS is using both the DOT and RSPA policies and procedures for addressing NTSB recommendations.

7. Petition the DOT, through RSPA, to execute a Memorandum of Agreement or Memorandum of Understanding with DHS, formalizing the security roles and responsibilities of OPS and TSA. OPS should also seek clarification on the delineation of roles and responsibilities between itself and DOE.

Response: There is no need for OPS to petition the Department for establishment of a MOU with DHS. The Deputy Secretaries of DOT and DHS have already agreed to produce an MOU between DOT and DHS on security matters. It is to be a general agreement supplemented with annexes on specific topics, with the first three being rail security; transit security and hazmat security. A future annex on pipeline security will follow. This is a Departmental priority to be completed as soon as practical. OPS will clarify its roles and responsibilities regarding security with DOE by November 2004.

U.S. Department
of Transportation

**Research and
Special Programs
Administration**

Preparation

James K. O'Steen

Equals

Dep. Assoc. Admin. for Pipeline Safety

Performance

May 13, 2002

U.S. Department of Transportation

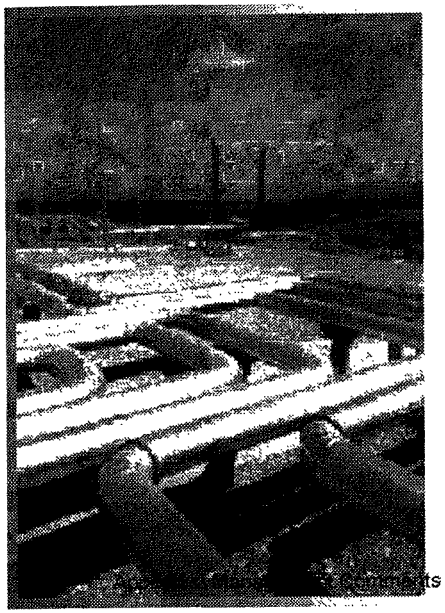
Research and Special Programs Administration

Gas Distribution

- Outside force damage major cause of pipeline failure
- Time to address integrity management program for distribution systems
- Need to develop a framework for distribution IMP
- Damage prevention will be a major part
- Industry efforts in operational excellence have been great
- Challenge you to reconstitute quality teams to address distribution IMP framework

U.S. Department
of Transportation

**Research and
Special Programs
Administration**



Preparation

James K. O'Steen

Equals

Dep. Assoc. Admin. for Pipeline Safety

Performance

August 20, 2002

U.S. Department of Transportation

Research and Special Programs Administration

Gas Distribution Integrity Management

- Need to develop a framework for a distribution IMP
- Outside force damage major cause of pipeline failure
- Damage prevention will be a major part
- Industry efforts in operational excellence will also play a major part
- Challenge you to start addressing a distribution IMP framework

1/08/04

DISTRIBUTION INFRASTRUCTURE GOVERNMENT-INDUSTRY GROUP

CHARTER

Overview
The American Gas Foundation (AGF) has commissioned a study to assess the Nation's gas distribution infrastructure by evaluation of safety performance, current operating and regulatory practices and emerging technologies.

Mission & Scope
The Distribution Infrastructure Government-Industry Group (DIGIG) is established to enable Operators of natural gas distribution facilities and government authorities overseeing natural gas pipeline safety to provide direction, review, and endorsement to the AGF study. The outcome will be communicated to the U.S. Department of Transportation (DOT) along with recommendations on how to proceed.

Organization
The DIGIG shall be comprised of equal number of Members and Observers from industry and the states, and a secretary to attend to the group's matters. In addition, DOT will participate as Observers.

There shall be an Industry Co-chair and a State Co-chair, selected from among the Members to serve indefinite terms.

Both industry and state Members represent respective constituencies.

Membership
State Members shall be selected from the National Association of Pipeline Safety Representatives (NAPSR) and the National Association of Regulatory Utility Commissioners (NARUC).

Industry Members shall be selected from sponsor utilities of the American Gas Foundation, American Gas Association (AGA), and the American Public Gas Association (APGA).

Each Observer may be selected at the discretion of the DIGIG Member group the Observer represents.

With the approval of the member group Co-chairs, Observers may serve as Alternates when a given Member is absent.

Committee Process
Meetings shall be held as often as necessary as determined by the Members.

A consensus process shall be used to agree on specific items brought before the DIGIG for consideration. Consensus is defined here as: *A decision which all Members or designated Alternates present at the meeting can agree upon. The decision may not be everyone's first choice, but the group finds it an acceptable means of addressing the issue presented.*

All Members' opinions are equal.

Observers may comment, but not participate in the consensus process unless representing Members as designated Alternates.

Amendments
Amendments to this Charter shall be approved by the Members. All proposed amendments shall be adopted by consensus.

Sunset
Dissolution of the DIGIG as an organization shall be by consensus of its Members.

ATTACHMENT

Miscellaneous Editorial Comments on *Draft Report on Actions Taken and Needed for Improving Pipeline Safety* (Project No. 03B3006B000).

1. The term "natural gas" should be changed to "gas" throughout the report. Part 192 applies to all gas pipelines, whether carrying natural gas, liquefied petroleum gas, or some other flammable, toxic, or corrosive gas.

2. Reference: page iv line 3
"The baseline assessment period for these hazardous liquid pipeline operators will not end until March 2008"
OPS comment: OPS suggests that the term "baseline inspection" be substituted for "baseline assessment" to more correctly characterize the requirement. Under the integrity management rules for hazardous liquid pipeline operators, we are requiring inspections to establish a baseline assessment of pipe conditions.

3. Reference: page xi line 35 and onto page xii
". . . unlike its pipeline safety program, OPS' security guidance in not mandatory."
OPS comments: Under HSPD-7 the Department of Homeland Security (DHS) is the lead agency for ensuring the security of critical transportation infrastructure.

STATEMENT FOR THE RECORD
U.S. REP. NICK RAHALL
Highways and Transit Subcommittee to
The Transportation and Infrastructure Committee
June 16, 2004

Mr. Chairman, I'm proud to welcome my personal friend with whom I share the same home state of West Virginia, ~~Deputy~~ Acting Administrator of the Research and Special Programs Administration, Sam Bonasso.

Since coming to Washington, DC to head up RSPA, Sam has had a very big job on his hands. Among other things, RSPA administers the national regulatory program to assure the safe transportation of natural gas, petroleum, and other hazardous materials by pipeline through the Office of Pipeline Safety.

In addition, RSPA has jurisdiction over the Office of Hazardous Materials as well the very important University Transportation Center Program, which oversees the efforts of the Nick J. Rahall Appalachian Transportation Institute in Huntington, WV – as I said, Sam has a very big job.

As has been noted, Mr. Chairman, in the last Congress we reauthorized the Office of Pipeline Safety with the passage of HR 3609 into law. (PL 107-355). The bill aimed to improve the safety and security of the nation's 2.2 million miles of pipeline through inspections, increased civil penalties for violators, enhanced notification programs, improved public education programs, and many other comprehensive matters.

All of this, of course, has only added to Sam's daily responsibilities, but I am very confident in his ability to carry out his duties.

I'm glad to welcome Sam, and thank him for appearing before us today.

My only question to Sam is this: In the 1990's OPS was inadequately authorized for the task, which we sought to address in the last Congress with reauthorization. Do you now have the tools you need to improve the safety and security of the nation's pipelines? And, if not, what are you lacking from us?

United States General Accounting Office

GAO

Testimony

Subcommittee on Highways, Transit and Pipelines, Committee on Transportation and Infrastructure, House of Representatives

For Release on Delivery
Expected at 10:00 a.m. EDT
Wednesday, June 16, 2004

PIPELINE SAFETY

Preliminary Information on the Office of Pipeline Safety's Efforts to Strengthen Its Enforcement Activities

Statement of Katherine Siggerud, Director
Physical Infrastructure Issues

GAO-04-875T

June 16, 2004

PIPELINE SAFETY

Preliminary Information on the Office of Pipeline Safety's Efforts to Strengthen Its Enforcement Activities

GAO Accountability · Integrity · Reliability

Highlights

Highlights of GAO-04-875T, a testimony before the Subcommittee on Highways, Transit and Pipelines, Committee on Transportation and Infrastructure, House of Representatives

Why GAO Did This Study

Interstate pipelines carrying natural gas and hazardous liquids (such as petroleum products) are safer to the public than other modes of freight transportation. The Office of Pipeline Safety (OPS), the federal agency that administers the national regulatory program to ensure safe pipeline transportation, has been undertaking a broad range of activities to make pipeline transportation safer. However, the number of serious accidents—those involving deaths, injuries, and property damage of $50,000 or more—has not fallen. Among other things, OPS takes enforcement action against pipeline operators when safety problems are found. OPS has several enforcement tools to require the correction of safety violations. It can also assess monetary sanctions (civil penalties).

This testimony is based on ongoing work for the House Committee on Transportation and Infrastructure and for other committees, as required by the Pipeline Safety Improvement Act of 2002. The testimony provides preliminary results on (1) the effectiveness of OPS's enforcement strategy and (2) OPS's assessment of civil penalties.

What GAO Recommends

GAO expects to issue a report in July 2004 that will address these and other topics and anticipates making recommendations.

www.gao.gov/cgi-bin/getrpt?GAO-04-875T.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Katherine Siggerud at (202) 512-2834 or siggerudk@gao.gov.

What GAO Found

The effectiveness of OPS's enforcement strategy cannot be determined because the agency has not incorporated three key elements of effective program management—clear program goals, a well-defined strategy for achieving goals, and performance measures that are linked to program goals. (See below.) Without these key elements, the agency cannot determine whether recent and planned changes in its strategy will have the desired effects on pipeline safety. Over the past several years, OPS has focused primarily on other efforts—such as developing a new risk-based regulatory approach—that it believes will change the safety culture of the industry. But, OPS also became more aggressive in enforcing its regulations, and now plans to further strengthen the management of its enforcement program. In particular, OPS is developing an enforcement policy that will help define its enforcement strategy and has taken initial steps toward identifying new performance measures. However, OPS does not plan to finalize the policy until 2005 and has not adopted key practices for achieving successful performance measurement systems, such as linking measures to goals.

Incorporation of Key Program Management Elements into OPS's Enforcement Strategy

Element	Extent
Clear program goals.	○
Well-defined strategy for achieving goals.	◒
Performance measures linked to program goals.	◒

● Fully incorporated ◒ Partially incorporated ○ Not incorporated

Source: GAO.

OPS increased both the number and the size of the civil penalties it assessed against pipeline operators over the last 4 years (2000-2003) following a decision to be "tough but fair" in assessing penalties. OPS assessed an average of 22 penalties per year during this period, compared with an average of 14 per year for the previous 5 years (1995-1999), a period of more lenient "partnering" with industry. In addition, the average penalty increased from $18,000 to $29,000 over the two periods. About 94 percent of the 216 penalties levied from 1994 through 2003 have been paid. The civil penalty is one of several actions OPS can take when it finds a violation, and these penalties represent about 14 percent of all enforcement actions over the past 10 years. While OPS has increased the number and the size of its civil penalties, stakeholders—including industry, state, and insurance company officials and public advocacy groups—expressed differing views on whether these penalties deter noncompliance with safety regulations. Some, such as pipeline operators, thought that any penalty was a deterrent if it kept the pipeline operator in the public eye, while others, such as safety advocates, told us that the penalties were too small to be effective sanctions.

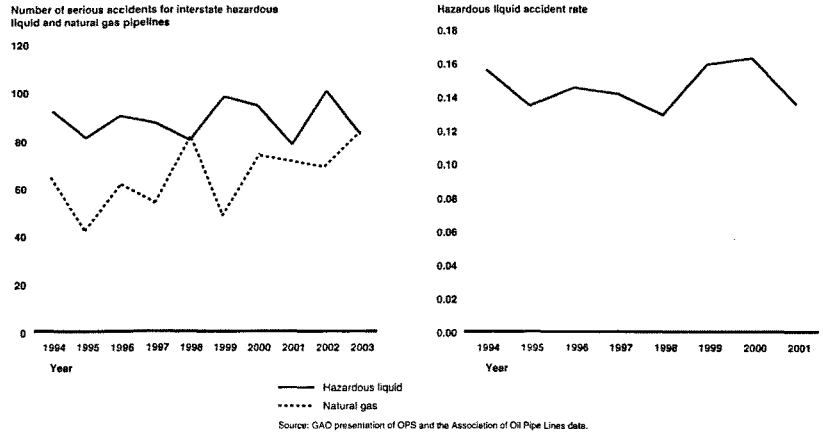
Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to participate in this hearing on progress made by the Office of Pipeline Safety (OPS) in implementing provisions of the Pipeline Safety Improvement Act of 2002. The act strengthens federal pipeline safety programs, state oversight of pipeline operators, and public education on pipeline safety. My remarks center on work, required by the act, that we have almost completed on the effectiveness of OPS's enforcement strategy and its use of monetary sanctions (civil penalties) when safety problems are found. The act also requires that we report in 2006 on OPS's implementation of its integrity management program and on a requirement that operators assess their facilities every 7 years for safety risks. We expect to begin work on these two topics next year.

As you know, pipeline transportation for hazardous liquids and natural gas is the safest form of freight transportation, and OPS has taken many steps to make it safer.[1] However, the number of serious hazardous liquid accidents has stayed about the same while the number of serious natural gas accidents has increased.[2] (See fig. 1.) Finally, the serious accident rate—which considers the amount of product and the distance shipped—for hazardous liquids has decreased. None of these statistics show a consistent pattern. In part, the lack of significant change over time and the fluctuation over time may be due to the relatively small number of serious accidents—on average about 150 per year for both types combined.

[1]Hazardous liquid pipelines carry products such as crude oil, diesel fuel, gasoline, jet fuel, anhydrous ammonia, and carbon dioxide.
[2]Serious accidents are those resulting in death, injury, or $50,000 or more in property damage.

Figure 1: Numbers of Serious Accidents and Accident Rate for Interstate Pipelines, 1994 through 2003



Notes: This figure does not include the injuries that occurred during one series of accidents caused by severe flooding near Houston, Texas, in October 1994.

The accident rate is the number of serious accidents per billion ton-miles shipped. A ton-mile is 1 ton of a product shipped 1 mile.

The hazardous liquid accident rate is based on the volume of petroleum products shipped. Federal agencies and industry associations we contacted could not provide data on other hazardous liquids shipped. Aggregated industry data on the amounts of products shipped through hazardous liquid pipelines for 2002 and 2003 are not available, so we do not present accident rate information for those years. We are inquiring into the availability of data on natural gas shipped through interstate pipelines; these data are needed to calculate the accident rate for this type of pipeline.

A cornerstone to OPS's efforts over the past several years has been the agency's development and implementation of a risk-based approach that it believes will fundamentally improve the safety of pipeline transportation. This approach, called integrity management, requires interstate pipeline operators to identify and fix safety-related threats to their pipelines in areas where an accident could have the greatest consequences. OPS believes that this approach has more potential to improve safety than its traditional approach, which focused on enforcing compliance with safety standards regardless of the threat to pipeline safety. Officials have emphasized that integrity management, coupled with other initiatives, such as oversight of operators'

programs to qualify employees to operate their pipelines, represents a systematic approach to overseeing and improving pipeline safety that will change the safety culture of the industry and drive down the number of accidents.

Now that its integrity management approach and other initiatives are substantially under way, OPS recognizes that it needs to turn its attention to the management of its enforcement program. Accordingly, my testimony today focuses on opportunities for improving certain aspects of OPS's enforcement program that should be useful to OPS as it decides how to proceed and to this committee as it continues to exercise oversight.

My statement is based on the preliminary results of our ongoing work for the House Committee on Transportation and Infrastructure and for others. As directed by the Pipeline Safety Improvement Act of 2002, we have been (1) evaluating the effectiveness of OPS's enforcement strategy and (2) examining OPS's assessment of monetary civil penalties against interstate pipeline operators that violate federal pipeline safety rules. We expect to report on the results of our work on these and other issues next month.

Our work is based on our review of laws, regulations, and program guidance and on our discussions with OPS officials and a broad range of stakeholders.[3] To evaluate the effectiveness of OPS's enforcement strategy, we determined the extent to which the agency's strategy incorporates three key elements of effective program management: clear program goals, a well-defined strategy for achieving these goals, and measures of performance that are linked to the program goals. We also examined the extent to which OPS assessed civil penalties from 1994 through 2003 and pipeline operators have paid them. Finally, we interviewed stakeholders on whether OPS's civil penalties help deter safety violations. As part of our work, we assessed internal controls and the reliability of the data elements needed for this engagement, and we determined that the data

[3]These stakeholders represent industry trade associations, pipeline companies, federal enforcement agencies, state pipeline enforcement agencies and associations, pipeline safety advocacy groups, and pipeline insurers.

elements, with one exception, were sufficiently reliable for our purposes.[4] We performed our work in accordance with generally accepted government auditing standards.

In summary:

- The effectiveness of OPS's enforcement strategy cannot be evaluated because the agency has not incorporated three key elements of effective program management—clear program goals, a well-defined strategy for achieving those goals, and measures of performance that are linked to the program goals. Without these three key elements, OPS cannot determine whether recent and planned changes in its enforcement strategy are having or will have the desired effects on pipeline safety. Under a more aggressive enforcement strategy (termed "tough but fair") that OPS initiated in 2000, the agency is using the full range of its enforcement tools, rather than relying primarily as it did before on more lenient administrative actions, such as warning letters. However, OPS has not established goals that specify the intended results of this new strategy, developed a policy that describes the strategy and the strategy's contribution to pipeline safety, or put measures in place that would allow OPS to determine and demonstrate the effects of this strategy on pipeline safety. OPS is developing an enforcement policy that will help define its enforcement strategy and has taken some initial steps toward identifying new measures of enforcement performance. However, it does not anticipate finalizing this policy until sometime in 2005 and has not adopted key practices for achieving successful performance measurement systems, such as linking measures to program goals.

- OPS increased both the number and the size of the civil penalties it assessed in response to criticism that its enforcement activities were weak and ineffective. For example, from 2000 through 2003, following its decision to be tough but fair in assessing civil penalties, OPS assessed an average 22 penalties per year, compared

[4]The data elements needed to determine when civil penalties were paid were, in our opinion, too unreliable to use to report on the timeliness of payments. This limitation did not create a major impediment to our reporting on OPS's use of civil penalties overall.

with an average of 14 penalties per year from 1995 through 1999, when OPS's policy was to "partner" with industry, rather than primarily to enforce compliance. In addition, from 2000 through 2003, OPS assessed an average civil penalty of about $29,000, compared with an average of $18,000 from 1995 through 1999. Departmental data show that operators have paid 94 percent (202 of 216) of the civil penalties issued over the past 10 years. Civil penalties are one of several enforcement actions that OPS can take to increase compliance and represent about 14 percent of all enforcement actions taken over the past 10 years. Although OPS has increased both the number and the size of its civil penalties, it is not clear whether this action will help deter noncompliance with the agency's safety regulations. The pipeline safety stakeholders we spoke with expressed differing views on whether OPS's civil penalties deter noncompliance with the pipeline safety regulations. Some—such as pipeline industry officials—said that civil penalties of any size act as a deterrent, in part because they keep companies in the public eye. Others—such as pipeline safety advocacy groups—said that OPS's civil penalties are too small to deter noncompliance.

Background

OPS, within the Department of Transportation's Research and Special Programs Administration (RSPA), administers the national regulatory program to ensure the safe transportation of natural gas and hazardous liquids by pipeline.[5] The office attempts to ensure the safe operation of pipelines through regulation, national consensus standards, research, education (e.g., to prevent excavation-related damage), oversight of the industry through inspections, and enforcement when safety problems are found.[6] The office uses a variety of enforcement tools, such as compliance orders and corrective

[5]In general, OPS retains full responsibility for inspecting interstate pipelines and enforcing regulations applicable to them. OPS certifies states to perform these functions for intrastate pipelines. OPS has agreements with 11 state pipeline enforcement agencies, known as interstate agents, to help it inspect segments of interstate pipelines within these states' boundaries. However, OPS undertakes any enforcement actions identified through inspections conducted by interstate agents.

[6]Standards are technical specifications that pertain to products and processes, such as the size, strength, or technical performance of a product. National consensus standards are developed by standard-setting

action orders that require pipeline operators to correct safety violations, notices of amendment to remedy deficiencies in operators' procedures, administrative actions to address minor safety problems, and civil penalties. OPS is a small federal agency. In fiscal year 2003, OPS employed about 150 people, about half of whom were pipeline inspectors.

Before imposing a civil penalty on a pipeline operator, OPS issues a notice of probable violation that documents the alleged violation and a notice of proposed penalty that identifies the proposed civil penalty amount. Failure by an operator to inspect a pipeline for leaks or unsafe conditions is an example of a violation that may lead to a civil penalty. OPS then allows the operator to present evidence either in writing or at an informal hearing. Attorneys from RSPA's Office of Chief Counsel preside over these hearings. Following the operator's presentation, the civil penalty may be affirmed, reduced, or withdrawn. If the hearing officer determines that a violation did occur, the Office of Chief Counsel issues a final order that requires the operator to correct the safety violation (if a correction is needed) and pay the penalty (called the "assessed penalty"). The operator has 20 days after the final order is issued to pay the penalty. The Federal Aviation Administration (FAA) collects civil penalties for OPS.[7]

From 1992 through 2002, federal law allowed OPS to assess up to $25,000 for each day a violation continued, not to exceed $500,000 for any related series of violations. In December 2002, the Pipeline Safety Improvement Act increased these amounts to $100,000 and $1 million, respectively.

entities, such as the American Society for Testing and Materials, on the basis of general agreement within industry.
[7]To consolidate its accounting functions, in September 1993 RSPA began contracting with FAA to collect its accounts receivable, including civil penalties for OPS.

Key Management Elements Are Needed to Determine the Effectiveness of OPS's Enforcement Strategy

The effectiveness of OPS's enforcement strategy cannot be determined because OPS has not incorporated three key elements of effective program management—clear performance goals for the enforcement program, a fully defined strategy for achieving these goals, and performance measures linked to the goals that would allow an assessment of the enforcement strategy's impact on pipeline safety.

OPS's Enforcement Strategy Has Been Evolving

OPS's enforcement strategy has undergone significant changes in the last 5 years. Before 2000, the agency emphasized partnering with the pipeline industry to improve pipeline safety rather than punishing noncompliance. In 2000, in response to concerns that its enforcement was weak and ineffective, the agency decided to institute a "tough but fair" enforcement approach and to make greater use of all its enforcement tools, including larger and more frequent civil penalties.[8] In 2001, to further strengthen its enforcement, OPS began issuing more corrective action orders requiring operators to address safety problems that had led or could lead to pipeline accidents. In 2002, OPS created a new Enforcement Office to focus more on enforcement and help ensure consistency in enforcement decisions. However, this new office is not yet fully staffed, and key positions remain vacant.

[8]For example, in May 2000, we reported that OPS had dramatically reduced its use of civil penalties and increased its use of administrative actions over the years without assessing the effects of these actions. See *Pipeline Safety: Office of Pipeline Safety Is Changing How It Oversees the Pipeline Industry*, GAO/RCED-00-128 (Washington, D.C.: May 15, 2000).

In 2002, OPS began to enforce its new integrity management and operator qualification standards in addition to its minimum safety standards. Initially, while operators were gaining experience with the new, complex integrity management standards, OPS primarily used notices of amendment, which require improvements in procedures, rather than stronger enforcement actions. Now that operators have this experience, OPS has begun to make greater use of civil penalties in enforcing these standards.

OPS has also recently begun to reengineer its enforcement program. Efforts are under way to develop a new enforcement policy and guidelines, develop a streamlined process for handling enforcement cases, modernize and integrate the agency's inspection and enforcement databases, and hire additional enforcement staff. However, as I will now discuss, OPS has not put in place key elements of effective management that would allow it to determine the impact of its evolving enforcement program on pipeline safety.

OPS Needs Goals for Its Enforcement Program

Although OPS has overall performance goals, it has not established specific goals for its enforcement program. According to OPS officials, the agency's enforcement program is designed to help achieve the agency's overall performance goals of (1) reducing the number of pipeline accidents by 5 percent annually and (2) reducing the amount of hazardous liquid spills by 6 percent annually.[9] Other agency efforts—including the development of a risk-based approach to finding and addressing significant threats to pipeline safety and of education to prevent excavation-related damage to pipelines—are also designed to help achieve these goals.

OPS's overall performance goals are useful because they identify the *end outcomes*, or ultimate results, that OPS seeks to achieve through all its efforts. However, OPS has not established performance goals that identify the *intermediate outcomes*, or direct results, that OPS seeks to achieve through its enforcement program. Intermediate outcomes show progress toward achieving end outcomes. For example, enforcement actions can

result in improvements in pipeline operators' safety performance—an intermediate outcome that can then result in the end outcome of fewer pipeline accidents and spills. OPS is considering establishing a goal to reduce the time it takes the agency to issue final enforcement actions. While such a goal could help OPS improve the management of the enforcement program, it does not reflect the various intermediate outcomes the agency hopes to achieve through enforcement. Without clear goals for the enforcement program that specify intended intermediate outcomes, agency staff and external stakeholders may not be aware of what direct results OPS is seeking to achieve or how enforcement efforts contribute to pipeline safety.

OPS Needs to Fully Define Its Enforcement Strategy

OPS has not fully defined its strategy for using enforcement to achieve its overall performance goals. According to OPS officials, the agency's increased use of civil penalties and corrective action orders reflects a major change in its enforcement strategy. However, although OPS began to implement these changes in 2000, it has not yet developed a policy that defines this new, more aggressive enforcement strategy or describes how the strategy will contribute to the achievement of the agency's performance goals. In addition, OPS does not have up-to-date, detailed internal guidelines on the use of its enforcement tools that reflect its current strategy. Furthermore, although OPS began enforcing its integrity management standards in 2002 and received greater enforcement authority under the 2002 pipeline safety act, it does not yet have guidelines in place for enforcing these standards or for implementing the new authority provided by the act.[10]

According to agency officials, OPS management communicates enforcement priorities and ensures consistency in enforcement decisions through frequent internal meetings

[9]OPS refers to the release of natural gas from a pipeline as an "incident" and a spill from a hazardous liquid pipeline as an "accident." For simplicity, this testimony refers to both as "accidents."
[10]We have reported on challenges that OPS faces in enforcing its complex integrity management requirements consistently and effectively. See our August 2002 report, *Pipeline Safety and Security: Improved Workforce Planning and Communication Needed,* GAO-02-785 (Washington, D.C.: Aug. 26, 2002).

and detailed inspection protocols and guidance. Agency officials recognize the need to develop an enforcement policy and up-to-date detailed enforcement guidelines and have been working to do so. To date, the agency has completed an initial set of enforcement guidelines for its operator qualification standards and has developed other draft guidelines. However, because of the complexity of the task, agency officials do not expect that the new enforcement policy and remaining guidelines will be finalized until sometime in 2005.

The development of an enforcement policy and guidelines should help define OPS's enforcement strategy; however, it is not clear whether this effort will link OPS's enforcement strategy with intermediate outcomes, since agency officials have not established performance goals specifically for their enforcement efforts. We have reported that such a link is important.[11]

OPS Needs Adequate Measures of the Effectiveness of Its Enforcement Strategy

According to OPS officials, the agency currently uses three performance measures and is considering three additional measures to determine the effectiveness of its enforcement activities and other oversight efforts. (See table 1.) The three current measures provide useful information about the agency's overall efforts to improve pipeline safety, but do not clearly indicate the effectiveness of OPS's enforcement strategy because they do not measure the intermediate outcomes of enforcement actions that can contribute to pipeline safety, such as improved compliance. The three measures that OPS is considering could provide more information on the intermediate outcomes of the agency's enforcement strategy, such as the frequency of repeat violations and the

[11]See U.S. General Accounting Office, *Managing for Results: Strengthening Regulatory Agencies' Performance Management Practices*, GAO/GGD-00-10 (Washington, D.C.: Oct. 28, 1999); *Agency Performance Plans: Examples of Practices That Can Improve Usefulness to Decisionmakers*, GAO/GGD/AIMD-99-69 (Washington, D.C.: Feb. 26, 1999); and *The Results Act: An Evaluator's Guide to Assessing Agency Annual Performance Plans*, GAO/GGD-10.1.20 (Washington, D.C., Apr. 1998).

number of repairs made in response to corrective action orders, as well as other aspects of program performance, such as the timeliness of enforcement actions.[12]

Table 1: Enforcement Program Performance Measures That OPS Currently Uses and Is Considering Developing

Measure	Examples
Measures OPS currently uses	
Achievement of agency performance goals	Annual numbers of natural gas and hazardous liquid pipeline accidents and tons of hazardous liquid materials spilled per million ton-miles shipped.
Inspection and enforcement activity	Number of inspections completed; hours per inspection; accident investigations; enforcement actions taken, by type; and average proposed civil penalty amounts.
Integrity management performance	Annual numbers of accidents in areas covered by integrity management standards and of actions by pipeline operators in response to these standards, such as repairs completed and miles of pipeline assessed.*
Measures OPS is considering developing	
Management of enforcement actions	The time taken to issue final enforcement actions, the extent to which penalty amounts are reduced, and the extent to which operators commit repeat violations.
Safety improvements ordered by OPS	Actions by pipeline operators in response to corrective action orders, including miles of pipeline assessed, defects discovered, repairs made, and selected costs incurred.
Results of integrity management and operator qualification inspections	The percentage of pipeline operators that did not meet certain requirements and the reduction in the number of operators with a particular deficiency.

Source: GAO analysis of OPS information.

*OPS started collecting some of these data in 2002 but does not anticipate obtaining all of it on an annual basis until 2005.

We have found that agencies that are successful in measuring performance strive to establish measures that demonstrate results, address important aspects of program performance, and provide useful information for decision-making.[13] While OPS's new measures may produce better information on the performance of its enforcement program than is currently available, OPS has not adopted key practices for achieving these characteristics of successful performance measurement systems:

[12]In addition, measures of pipeline operators' integrity management performance and of the results of integrity management and operator qualification inspections could provide information on the intermediate outcomes of these regulatory approaches.

[13]See, for example, GAO/GGD/AIMD-99-69; *Executive Guide: Effectively Implementing the Government Performance and Results Act*, GAO/GGD-96-118 (Washington, D.C.: June 1996); and *Tax Administration: IRS Needs to Further Refine Its Tax Filing Season Performance Measures*, GAO-03-143 (Washington, D.C.: Nov. 22, 2002).

- *Measures should demonstrate results (outcomes) that are directly linked to program goals.* Measures of program results can be used to hold agencies accountable for the performance of their programs and can facilitate congressional oversight. If OPS does not set clear goals that identify the desired results (intermediate outcomes) of enforcement, it may not choose the most appropriate performance measures. OPS officials acknowledge the importance of developing such goals and related measures but emphasize that the diversity of pipeline operations and the complexity of OPS's regulations make this a challenging task.[14]

- *Measures should address important aspects of program performance and take priorities into account.* An agency official told us that a key factor in choosing final measures would be the availability of supporting data. However, the most essential measures may require the development of new data. For example, OPS has developed databases that will track the status of safety issues identified in integrity management and operator qualification inspections, but it cannot centrally track the status of safety issues identified in enforcing its minimum safety standards. Agency officials told us that they are considering how to add this capability as part of an effort to modernize and integrate their inspection and enforcement databases.

- *Measures should provide useful information for decision-making, including adjusting policies and priorities.*[15] OPS uses its current measures of enforcement performance in a number of ways, including monitoring pipeline operators' safety performance and planning inspections. While these uses are important, they are of limited help to OPS in making decisions about its enforcement strategy. OPS

[14]We have reported on the challenges faced by agencies in developing measures of program results and on their approaches for overcoming such challenges. See, in particular, GAO/GGD-00-10; *Managing for Results: Measuring Program Results That Are Under Limited Federal Control*, GAO/GGD-99-16 (Washington, D.C.: Dec. 11, 1998); and *Managing for Results: Regulatory Agencies Identified Significant Barriers to Focusing on Results*, GAO/GGD-97-83 (Washington, D.C.: June 24, 1997).

has acknowledged that it has not used performance measurement information in making decisions about its enforcement strategy. OPS has made progress in this area by identifying possible new measures of enforcement results (outcomes) and other aspects of program performance, such as indicators of the timeliness of enforcement actions, that may prove more useful for managing the enforcement program.

OPS Has Increased Its Use of Civil Penalties; the Effect on Deterrence Is Unclear

In 2000, in response to criticism that its enforcement activities were weak and ineffective, OPS increased both the number and the size of the civil monetary penalties it assessed.[16] Pipeline safety stakeholders expressed differing opinions about whether OPS's civil penalties are effective in deterring noncompliance with pipeline safety regulations.

OPS Now Assesses More and Larger Civil Penalties

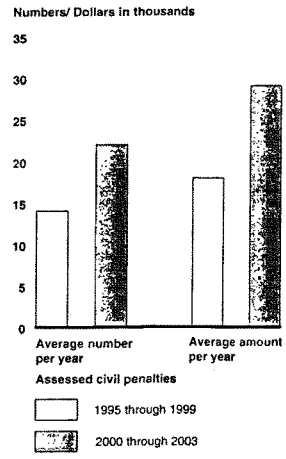
OPS assessed more civil penalties during the past 4 years under its current "tough but fair" enforcement approach than it did in the previous 5 years, when it took a more lenient enforcement approach. (See fig. 2.) From 2000 through 2003, OPS assessed 88 civil penalties (22 per year on average) compared with 70 civil penalties from 1995 through 1999 (about 14 per year on average). For the first 5 months of 2004, OPS proposed 38 civil penalties. While the recent increase in the number and the size of civil penalties may reflect OPS's new "tough but fair" enforcement approach, other factors, such as more severe violations, may be contributing to the increase as well.

[15]See, for example, GAO/GGD-96-118 and *Results-Oriented Government: GPRA Has Established a Solid Foundation for Achieving Greater Results*, GAO-04-38 (Washington, D.C.: Mar. 10, 2004).

[16]The civil penalty results we present largely reflect OPS's enforcement of its minimum safety standards because integrity management enforcement did not begin until 2002.

Our results may differ from the results that OPS reports because our data are organized differently. OPS reports an action in the year in which it occurred. For example, OPS may propose a penalty in one year and assess it in another year. The data for this action would show up in different years. To better track the disposition of civil penalties, we associated assessed penalties and penalty amounts with the year in which they were proposed—even if the assessment occurred in a later year.

Figure 2: OPS's Use of Civil Penalties, 2000 through 2003, Compared with 1995 through 1999



Source: GAO analysis of OPS and FAA data.

Note: The amounts in this figure may not be comparable to the amounts that OPS reports. See footnote 16.

Overall, OPS does not use civil penalties extensively. Civil penalties represent about 14 percent (216 out of 1,530) of all enforcement actions taken over the past 10 years. OPS makes more extensive use of other types of enforcement actions that require pipeline operators to fix unsafe conditions and improve inadequate procedures, among other things. In contrast, civil penalties represent monetary sanctions for violating safety regulations but do not require safety improvements. OPS may increase its use of civil penalties as it begins to use them to a greater degree for violations of its integrity management standards.

The average size of the civil penalties has increased. For example, from 1995 through 1999, the average assessed civil penalty was about $18,000.[17] From 2000 through 2003, the average assessed civil penalty increased by 62 percent to about $29,000.[18] Assessed penalty amounts ranged from $500 to $400,000.

In some instances, OPS reduces proposed civil penalties when it issues its final order. We found that penalties were reduced 31 percent of the time during the 10-year period covered by our work (66 of 216 instances). These penalties were reduced by about 37 percent (from a total of $2.8 million to $1.7 million). The dollar difference between the proposed and the assessed penalties would be over three times as large had our analysis included the extraordinarily large penalty for the Bellingham, Washington, incident. For this case, OPS proposed a $3.05 million penalty and had assessed $250,000 as of May 2004.[19] If we include this penalty, then over this period OPS reduced total proposed penalties by about two-thirds, from about $5.8 million to about $2 million.

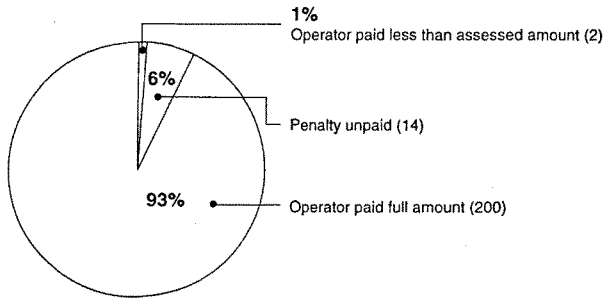
OPS's database does not provide summary information on why penalties are reduced. According to an OPS official, the agency reduces penalties when an operator presents evidence that the OPS inspector's finding is weak or wrong or when the pipeline's ownership changes during the period between the proposed and the assessed penalty. It was not practical for us to gather information on a large number of penalties that were reduced, but we did review several to determine the reasons for the reductions. OPS reduced one of the civil penalties we reviewed because the operator provided evidence that OPS inspectors had miscounted the number of pipeline valves that OPS said the operator had not inspected. Since the violation was not as severe as the OPS inspector had stated, OPS reduced the proposed penalty from $177,000 to $67,000.

[17]All amounts are in current year dollars. Inflation was low during the 1995-2003 period. If the effects of inflation were considered, the average assessed penalty amount for 1995 through 1999 would be $21,000 and the average amount for 2000 through 2003 would be $30,000 (in 2003 dollars).
[18]The median civil penalty size for the 1995-1999 period was about $5,800 and the median size for the 2000-2003 period was $12,700.
[19]OPS proposed a $3.05 million penalty against Equilon Pipeline Company, LLC (Olympic Pipeline Company) for the Bellingham incident and later assessed Shell Pipeline Company (formerly Equilon) $250,000, which it collected. According to RSPA's Office of Chief Counsel, the penalty against Olympic Pipeline is still open, waiting for the company to emerge from bankruptcy court.

Operators Paid Full Amounts of Most Civil Penalties

Of the 216 penalties that OPS assessed from 1994 through 2003, pipeline operators paid the full amount 93 percent of the time (200 instances) and a reduced amount 1 percent of the time (2 instances). (See fig. 3.) Fourteen penalties (6 percent) remain unpaid, totaling about $837,000 (or 18 percent of penalty amounts).

Figure 3: Number of Civil Penalties Paid, 1994 through 2003



Source: GAO analysis of OPS and FAA data.

In two instances, operators paid reduced amounts. We followed up on one of these assessed penalties. In this case, the operator requested that OPS reconsider the assessed civil penalty and OPS reduced it from $5,000 to $3,000 because the operator had a history of cooperation and OPS wanted to encourage future cooperation.

For the 14 unpaid penalties, neither FAA's nor OPS's data show why the penalties have not been collected. We expect to present a fuller discussion of the reasons for these unpaid penalties and OPS's and FAA's management controls over the collection of penalties when we report to this and other committees next month.

The Effect of OPS's Larger Civil Penalties on Deterring Noncompliance Is Unclear

Although OPS has increased both the number and the size of the civil penalties it has imposed, the effect of this change on deterring noncompliance with safety regulations, if any, is not clear. The stakeholders we spoke with expressed differing views on whether the civil penalties deter noncompliance. The pipeline industry officials we contacted believed that, to a certain extent, OPS's civil penalties encourage pipeline operators to comply with pipeline safety regulations because they view all of OPS's enforcement actions as deterrents to noncompliance. However, some industry officials said that OPS's enforcement actions are not their primary motivation for safety. Instead, they said that pipeline operators are motivated to operate safely because they need to avoid any type of accident, incident, or OPS enforcement action that impedes the flow of products through the pipeline and hinders their ability to provide good service to their customers. Pipeline industry officials also said that they want to operate safely and avoid pipeline accidents because accidents generate negative publicity and may result in costly private litigation against the operator.

Most of the interstate agents, representatives of their associations, and insurance company officials expressed views similar to those of the pipeline industry officials, saying that they believe civil penalties deter operators' noncompliance with regulations to a certain extent. However, a few disagreed with this point of view. For example, the state agency representatives and a local government official said that OPS's civil penalties are too small to be deterrents. Pipeline safety advocacy groups that we talked to also said that the civil penalty amounts OPS imposes are too small to have any deterrent effect on pipeline operators. As discussed earlier, for 2000 through 2003, the average assessed penalty was about $29,000.

According to economic literature on deterrence, pipeline operators may be deterred if they expect a sanction, such as a civil penalty, to exceed any benefits of

noncompliance.[20] Such benefits could, in some cases, be lower operating costs. The literature also recognizes that the negative consequences of noncompliance–such as those stemming from lawsuits, bad publicity, and the value of the product lost from accidents–can deter noncompliance along with regulatory agency oversight. Thus, for example, the expected costs of a legal settlement could overshadow the lower operating costs expected from noncompliance, and noncompliance might be deterred.

Mr. Chairman, this concludes my prepared statement. We expect to report more fully on these and other issues when we complete our work next month. We also anticipate making recommendations to improve OPS's ability to demonstrate the effectiveness of its enforcement strategy and to improve OPS's and FAA's management controls over the collection of civil penalties. I would be pleased to respond to any questions that you or Members of the Subcommittee might have.

Contacts and Acknowledgments

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[20]Expected sanctions are the product of the sanction amount and the likelihood of being detected and sanctioned by that amount.

Rep. Ellen O. Tauscher

Statement for the record and questions for Panel I

Subcommittee on Highways, Transit and Pipelines hearing on

Pipeline Safety and the Office of Pipeline Safety

June 16, 2004

Mr. Chairman and Ranking Member Lipinski, thank you for holding this important oversight hearing today.

When this Committee and Congress passed the "Pipeline Safety Improvement Act of 2002," it required the President to establish a process to ensure that all environmental reviews and permits were completed in time for operators to meet OPS regulatory deadlines for safe pipeline repairs.

The law requires that an MOU meeting specific requirements be entered into not more than one year after enactment by the agencies responsible for overseeing permitting activities. The law further requires those agencies to revise their regulations to implement the MOU within 180 days after the MOU was complete. Since the law was signed 18 months ago in December of 2002, if the Administration and agencies met their deadlines, agencies should by now have promulgated changes in their regulations to ensure these important safety deadlines are met.

Mr. Chairman, as you may know, in April there was a pipeline rupture in my district that discharged approximately 85,000 gallons of diesel fuel into an environmentally sensitive wetland known as Suisun Marsh in Solano County, California. I am told the operator was aware of the deteriorated condition of this pipeline and it took three years to get the necessary permits to move the pipeline and replace the old equipment.

This recent rupture is a painful reminder of why we passed the pipeline safety legislation to streamline the permitting for inspection, repair and relocation of this critical infrastructure. Fortunately, this rupture did not injure or kill any humans, although many species of wildlife were killed and their habitats severely degraded.

Congress' intent in the Pipeline Safety Improvement Act is clear. In order to avoid similar pipeline accidents in other areas of the country, the streamlined permitting directives of this law must be fully met. Therefore, I would like each of the panelists to answer the following questions for the record:

1. Is the MOU complete and signed by all agencies?

2. The law requires that the MOU contain provisions "identifying those repairs or categories of repairs described in paragraph (1) for which the best practices described in paragraph (3) *(e.g. those used by the industry to access, excavate, and restore the site of a pipeline repair),* when properly employed by a pipeline operator, would result in no more than minimal adverse effects on the environment and for which discretionary administrative reviews may therefore be minimized or eliminated". Does the MOU contain such provisions? If so, what specific language in the MOU meets those statutory requirements? Also, describe how those administrative reviews are minimized or eliminated under the MOU.

3. For repairs not meeting the criteria in Question 2 (e.g. repairs that do not result in minimal environmental impact when best practices are used and followed), the law requires the MOU to "include provisions to enable pipeline operators to commence and complete all activities necessary to carry out pipelines repairs within any time periods specified" by DOT's pipeline repair rules. What specific provisions in the MOU meet that statutory requirement? Describe specifically how the MOU ensures that pipeline operators complete all activities necessary to complete repairs within specified OPS deadlines?

4. The statute requires that the MOU include "criteria under which permits required for [pipeline repair] activities should be prioritized over other less urgent agency permit application reviews. What specific provisions in the MOU contain these criteria?

5. What changes have been made to agencies' regulations, and what changes to regulations have been proposed, to meet the requirements to implement the MOU? When did the final changes become effective? When will the proposed regulations be finalized?

6. If specific answers are not available for the above questions, please provide information on why the MOU does not meet the law's requirements. For example, are there provisions in existing laws that interfere with any agency's ability to identify the types of repairs that have minimal adverse environmental impacts when using best practices? Do any agencies have statutory problems with minimizing or eliminating discretionary administrative reviews associated with such repairs? If so, what are those problems? For repairs not meeting the minimal adverse environmental impact criterion, have agencies identified provisions in existing statutes that would prevent them from completing their administrative reviews in time to meet OPS deadlines?

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